

MPL-NGS
Self-loader Wrecker

OPERATIONS AND MAINTENANCE
MANUAL

JERR-DAN[®]

An Oshkosh Corporation Company

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FOREWORD

This manual serves as a guide for the owner and operator in the safe operation and optimum performance of your Jerr-Dan equipment.

For your safety, and the safety of others, you must

- know the proper use of the equipment
- use the equipment within its capability
- develop consistent habits of proper use
- use good judgement

Before attempting to operate the unit, carefully read all sections of this manual.

Keep this manual with your equipment at all times. Refer to it if in doubt of proper operation.

Information contained in this manual reflects how your Jerr-Dan equipment was built at the factory. Modifications or additions by the distributor or owner are not reflected in this manual.

This manual does not include operation and maintenance information for the commercial chassis (International, Ford, GM, etc.). That information is provided by the chassis manufacturer.

When inquiring about operation, maintenance or warranty, please refer to your equipment's Sales Order Number, Serial Number and Model Number. This information can be found on the aluminum tag riveted inside the driver's side toolbox on the back wall in the upper right corner.



Jerr-Dan Corporation strives to provide information that is accurate, complete and useful. All information contained in this manual is as accurate as known at the time of publication and is subject to change, without notice, as a result of continuous product improvements. Jerr-Dan reserves the right to amend the information in this document at any time without prior notice.

Should you find inadequacies in the text, please send your comments to the following address:

Jerr-Dan Corporation
Attn: Technical Publications
13224 Fountainhead Plaza
Hagerstown, MD 21742

or by e-mail at technicalpublications@jerr-dan.com.

Always keep this manual in your vehicle so the operator can study it as needed before a recovery. Remember to replace the manual if lost.

Additional or replacement manuals or replacement safety warning labels can be ordered by calling Jerr-Dan Parts at 717-597-7111.

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Manufactured under one or more of the following patents: 5,575,606; 5,672,042; 5,697,741; 5,713,714; 5,722,810; 5,782,596; 5,839,775; and 6,315,515 B1 with other Patents Pending.

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SAFETY

The safe operation of your MPL-NGS is your responsibility. Read this manual and the truck manufacturer's manual and thoroughly understand them. You can be held legally responsible for injuries or damage resulting from careless or unsafe operating practices.

Our recommendations for operating your equipment can help you avoid unsafe practices and their bad consequences. These recommendations are contained in this manual.

Jerr-Dan Corporation is not responsible for the results of any unsafe practice of tow operators or for the failure of your equipment or its accessories resulting from improper use or lack of maintenance.

The danger from a vehicle continues after it is disabled or wrecked. Recovering or towing vehicles can be dangerous too! The danger threatens tow operators and everyone else close by. As a tow operator you must develop an awareness of the hazards involved. You must use every safeguard to prevent injuries.

Careful consideration of the immediate surrounding conditions such as the weather, terrain, type or condition of the vehicle to be recovered and the condition and experience of the operator is foremost to the safety and success of the operation.

Tie-down straps are provided for use with your new Jerr-Dan Recovery Vehicle. Each week inspect all straps for any signs of rips, tears, cuts, fatigue or other damage. Check the hooks to. Make sure they have not been bent or deformed. If strap or hook damage is noted, they must be replaced before being used.

Wire rope cables wear out or can become damaged. Periodically inspect the wire rope cable for any signs of fatigue or damage. Check the hooks to be sure they have not been bent or deformed. Replace immediately when damaged. **Refer to the Wire Rope Handling and Inspection Section.**

For each step in operating your equipment develop the habit of asking yourself "is it safe to proceed?" Carefully check your set up before starting a lift or tow.

Because recoveries can be so different, we cannot warn you of all the possible hazards you will encounter, but we will tell you of the most common hazards that we know about. We also strongly recommend that

you receive specialized and advanced training from a professional Towing and Recovery instructor before operating any recovery equipment and that the Vehicle Manufacturers Towing Manual and/or American Automobile Association (AAA) Towing Manuals be used as a reference for operating safety methods.

AAA address and phone number:

THE AMERICAN AUTOMOBILE ASSOCIATION

1000 AAA Drive
Heathrow, FL 32746-9970
(800)222-4357

To alert personnel to hazardous operating practices, safety messages are used throughout the manual. Each safety message contains a safety alert symbol and a signal word to identify the hazard's degree of seriousness



CAUTION:

Identifies when a potentially hazardous situation exists and may result in a minor or moderate injury or property damage.



DANGER:

Identifies when an imminently hazardous situation exists and can result in death or serious injury.



WARNING:

Identifies when a potentially hazardous situation exists and could result in death or serious injury.

DO NOT EXCEED THE FOLLOWING RATINGS:

All ratings comply with SAE J2512 Recommended Practice

MPL-NGS Underlift Rating..... 4,000 lbs “L” Arm
Tow Rating 7,500 lbs.
Boom Rating 8,000 lbs.
Winch Rating: (Ramsey Worm Gear Winch) 8,000 lbs.
Wire Rope:
 Working Limit 4,100 lbs.
 Construction 6 x 25 EIPS RRL IWRC
 Diameter 3/8 inch
 Standard Length 75 Feet

NOTE:

These ratings apply to the structural design of the MPL-NGS. They might be limited by the axle rating and gross vehicle weight rating of the truck chassis.

The payload and towing capacity of any towing vehicle must meet the following:

- The actual payload on the towing vehicle must not exceed the posted rating and the towed vehicle load must not exceed the posted lift / towing ratings.
- The total weight of the towing vehicle (cab chassis, body, payload, driver, passenger(s), tools, fuel, etc.) and the towed vehicle load must not exceed the GVWR (Gross Vehicle Weight Rating) of the towing vehicle.
- The total weight of the towing vehicle and a towed vehicle load must be distributed so that each axle’s GAWR (Gross Axle Weight Rating) is not exceeded.
- The total weight of the towing vehicle and towed vehicle (everything that moves with the towing vehicle) must not exceed the GCWR (Gross Combination Weight Rating) of the towing vehicle.

Staying within these ratings is necessary to maintain the safety and performance of the towing vehicle.

CHECK TRUCK MANUAL FOR SPECIFIC GVW & AXLE RATINGS. ALSO LOOK AT THE CERTIFICATION DECAL AFFIXED TO DRIVER’S SIDE DOOR JAMB, HINGE PILLAR OR LATCH POST AND THE S.T.A.R. PLACARD ON THE REAR SIDE OF THE BOOM.

MFG BY: _____

DATE OF MFR: MO _____ YR. _____

GVWR: _____ KG (_____ LB)

GAWR-FRONT:

_____ KG (_____ LB)

WITH _____ TIRES,

_____ RIMS, @ _____ KPA

(_____ PSI) COLD _____

GAWR-INTERMEDIATE(1):

_____ KG (_____ LB)

WITH _____ TIRES,

_____ RIMS, @ _____ KPA

(_____ PSI) COLD _____

GAWR-INTERMEDIATE(2):

_____ KG (_____ LB)

WITH _____ TIRES,

_____ RIMS, @ _____ KPA

(_____ PSI) COLD _____

GAWR-REAR:

_____ KG (_____ LB)

WITH _____ TIRES,

_____ RIMS, @ _____ KPA

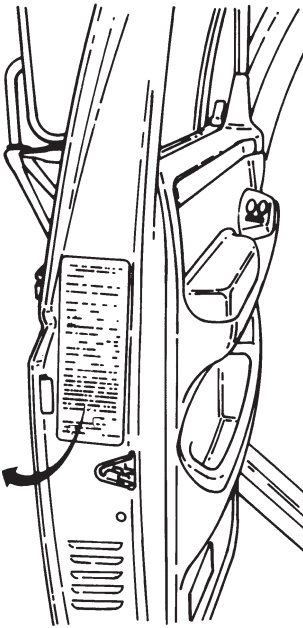
(_____ PSI) COLD _____

THIS VEHICLE HAS BEEN COMPLETED IN ACCORDANCE WITH THE PRIOR MANUFACTURERS' IVD, WHERE APPLICABLE. THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE SAFETY STANDARDS, [AND BUMPER AND THEFT PREVENTION STANDARDS, IF APPLICABLE] IN EFFECT IN:

MO. _____ YR. _____

VEHICLE IDENTIFICATION NUMBER: _____

VEHICLE TYPE: _____



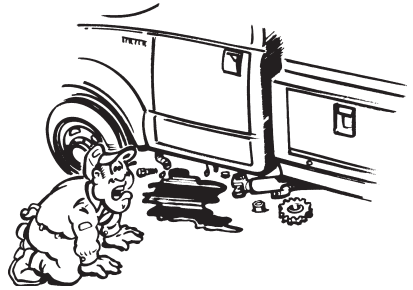
Certification Decal

Affixed to the Driver's Side DoorJam, Hinge Pillar or Latch Post

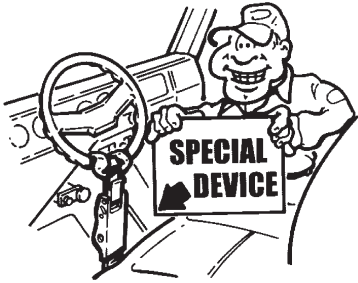
Provided by the Final Stage Vehicle Manufacturer according to Title 49 Part 567 of the Code of Federal Regulations (CFR)



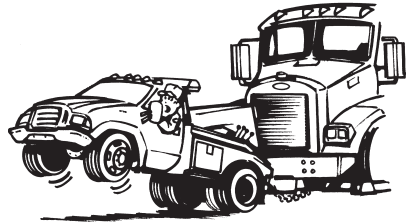
- Don't use a recovery vehicle that has not been properly maintained. Pay special attention to the mounting bolts, and lubrication of moving parts.



- Don't operate the wrecker's engine faster than recommended. Excessive speeds can damage PTO, hydraulic pumps, and winches.



- Don't rely on anti-theft steering locks to secure the steering wheel. Use a special steering wheel clamping device designed for this purpose.



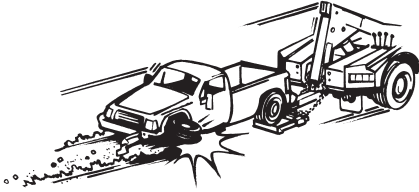
- Don't pick-up and tow a vehicle that reduces the weight on the front wheels of the wrecker more than 50 percent.



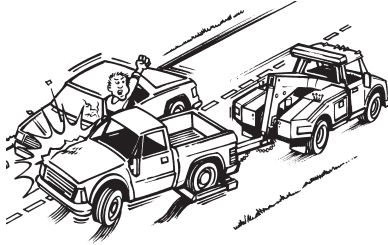
- After you have hooked up a vehicle for towing, don't start the tow until you have double checked the hook-up, installed safety chains, and released the parking brakes of the towed vehicle.



- Don't travel with the PTO or Clutch Pump engaged. Damage to the trucks transmission, engine or hydraulic components will occur. Engage it only while operating the controls.



- Don't tow a vehicle on its front wheels if they are damaged.


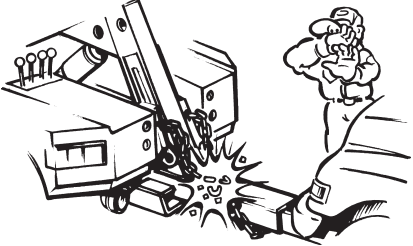




- Don't tow a vehicle on its front wheels unless the steering wheel is secured with the front wheels straight ahead.

SAFETY CHAINS MUST BE USED WHEN TOWING AND TRANSPORTING

Safety chains are provided for use with your new Jerr-Dan Recovery Vehicle. Periodically inspect all chains for any signs of fatigue or damage. Don't overlook the hooks; be sure they have not been bent or deformed. If chain or hook damage is noted, they must be replaced before being used. **Do not use safety chains for recovery operations.**

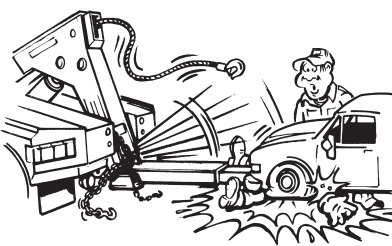
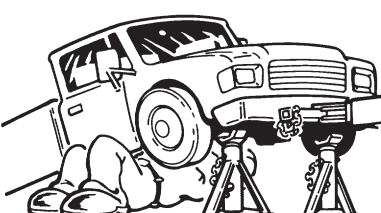
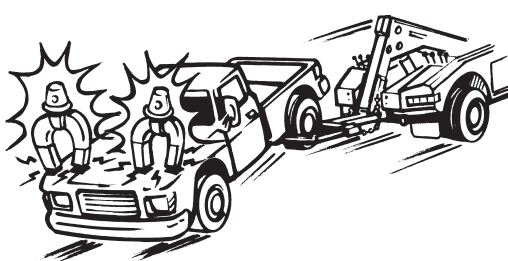
Many states require that the towed vehicle be secured to the wrecker body with safety chains. Check your local regulations and use your safety chains. Safety chains are provided for use with your new JERR-DAN.

 <ul style="list-style-type: none">• Never attach the chain hooks in such a way as to damage brake lines or other functional parts.	 <ul style="list-style-type: none">• Check that the chain does not become over tensioned when raising the towed vehicle to the towing position or during the towing operation.
 <ul style="list-style-type: none">• Keep in mind that driving over bumps and hollows and around corners will tend to tighten or loosen the chains.	 <ul style="list-style-type: none">• Always use two safety chains when towing all vehicles, regardless of distance.

LIFT SAFETY

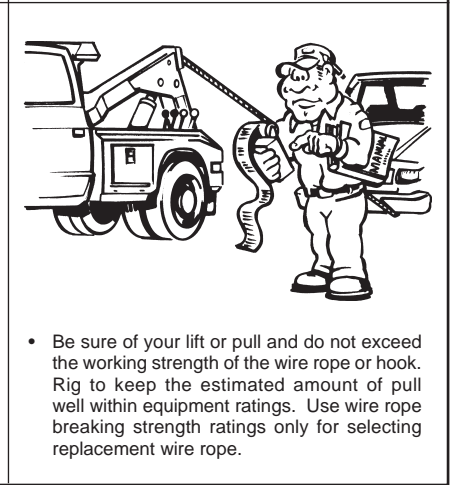
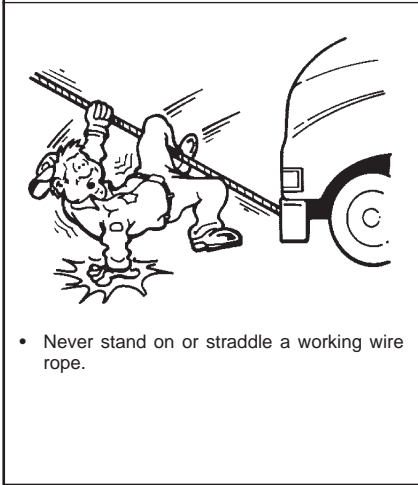
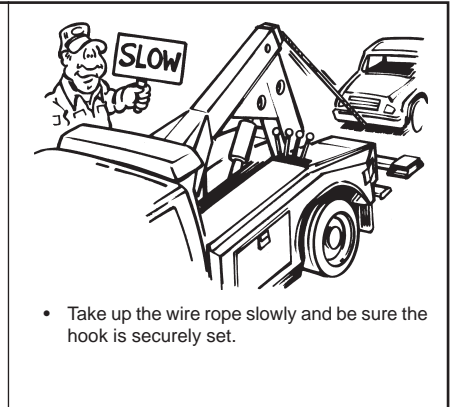
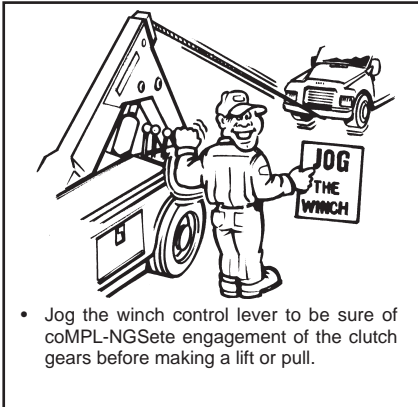
Careful consideration of the immediate surrounding conditions such as the weather, terrain, type or condition of the vehicle to be recovered and the condition and experience of the operator is foremost to the safety and success of the operation. In addition, the intent of the design of this unit should be taken before the undertaking of its use.

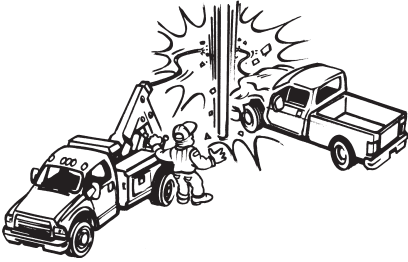
Your MPL-NGS is unique. It not only can make lifts from level surfaces, our boom tilt feature allows pickup of vehicles that are parked on both inclines and declines.

 <ul style="list-style-type: none">• You should never make a lift or movement while close to or under the vehicle being lifted!	 <ul style="list-style-type: none">• Always use jack stands to support the vehicle if it is necessary to work under it.
 <ul style="list-style-type: none">• Towing lights are required in many areas and are always recommended for safe tows.	

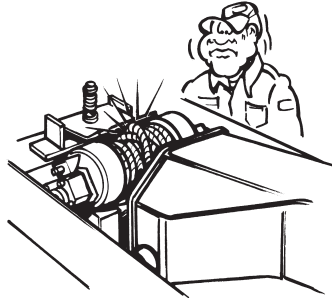
BOOM SAFETY

If Your MPL-NGS is equipped with a recovery winch and the following safety procedures must be observed:





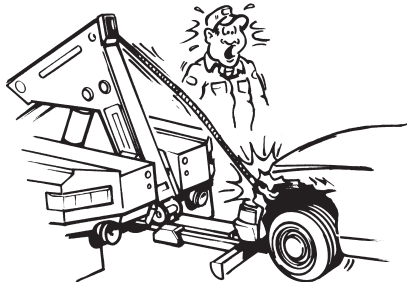
- Never lift or pull over or around a sharp obstacle.



- Never allow the wire rope to cross wrap (criss-cross) on the winch drum. Crushing of the wire rope can cause wire rope failure.



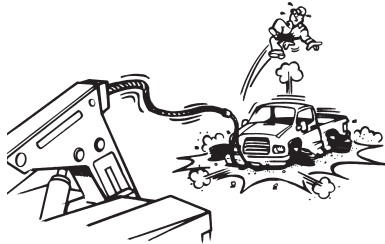
- Never completely unwind wire rope from a winch while loaded. Always be sure that a minimum of five (5) wraps of wire rope are on the drum at all times.



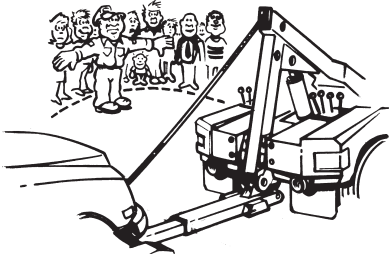
- Never make a lift or pull with the wire rope attached to light gauge or sheet metal parts; use the frame or major structural members.



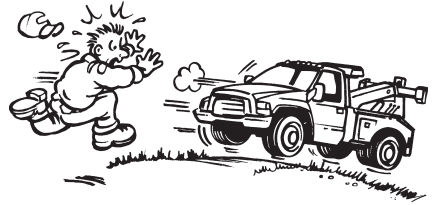
- Never tie down the front end of your wrecker for recovery work of heavy lifts. You will likely damage the truck frame if you do.



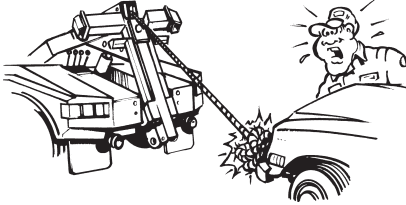
- Don't disengage the winch drum clutch while the wire rope is loaded.



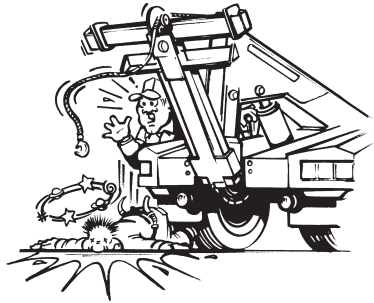
- Don't permit bystanders in the area while performing recovery work.



- Be sure all brakes and locks are properly set on the recovery vehicle.



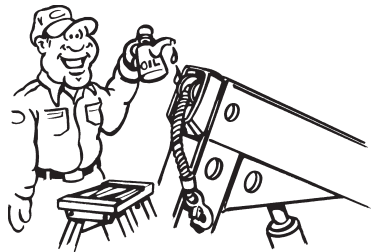
- Never wrap the wire rope around frames or cross members. Use chains and hook the wire rope to the chains.



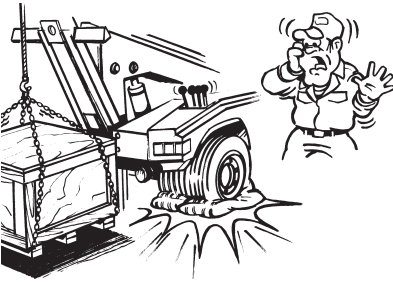
- Never under any circumstances use the winch or boom to lift people!



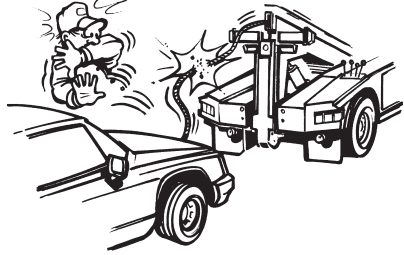
- Don't use damaged wire ropes on your wrecker. Become familiar with the various types of wire rope damage and periodically inspect the entire wire rope for wear and corrosion. **Never use wire rope menders.** Replace with similar rated wire rope and hooks.



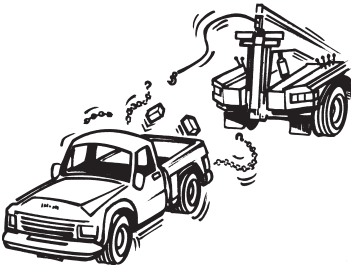
- Lubricate and maintain both the wire rope and winch on regular intervals. (See maintenance charts.)



- Avoid using the boom raise or boom up control to lift a load. This causes undue stress and weight loading on the rear axle. Use the winch to lift the load.



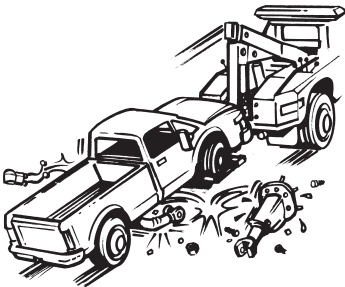
- All boom placement functions should be made with the winch wire ropes set in "free spool" to avoid over tensioning or breaking the winch wire ropes.



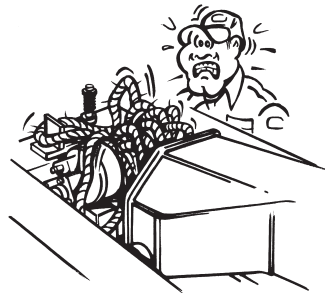
- After rigging wire ropes, don't begin pulling without rechecking connections. Make sure that all wire ropes and snatch blocks are securely attached and cannot accidentally pull loose.



- Don't exceed ratings of booms, wire ropes, snatch blocks, or winches. Stay within nameplate ratings.



- Don't tow a vehicle on its drive wheels unless steps have been taken to protect its transmission and differential. Follow the recommendations of the vehicle manufacturer. As an alternative, use a towing dolly.



- To avoid birdnesting and premature failure of the wire rope, always keep tension on the wire rope when unwinding.

CAPACITY/RATING INFORMATION PLACARDS

These placards provide information about carrier and vehicle ratings, capacities and load limits. You must stay within these ratings/capacities when using the MPL-NGS. These placards must not be obliterated, removed or painted over. They are there to remind and protect the operator. (Not all placards are used on all units) If a placard becomes lost or unreadable, it should be replaced. Replacements are available through the Service Parts Department.

SERIAL NO. []
 MODEL NO. []

UNDER LIFT RATINGS (MAXIMUM)
 EXTENDED [] LBS. RETRACTED [] LBS.
 WINCH RATING: EACH DRUM [] LBS.
 WIRE ROPE: WORKING LIMIT [] LBS.
 TYPE [] SIZE [] FT.

WARNING
 READ OPERATOR'S MANUAL AND FAMILIARIZE YOURSELF WITH THE OPERATION PRIOR TO USING THIS EQUIPMENT. KNOW THE LOADS BEING MOVED. DO NOT EXCEED RATED CAPACITIES.

WARNING
 ALL RATINGS ARE BASED ON THE STRUCTURAL CAPACITY OF ABOVE MODEL. ACTUAL TOWING AND RECOVERY CAPACITY MAY BE LIMITED BY THE CAPACITY OF THE CHASSIS AND EQUIPMENT SELECTED.

MANUFACTURED BY:
 JERR-DAN CORPORATION
 1080 HYKES ROAD
 GREENCASTLE, PA 17225
 1-800-926-9666

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BODY NO: [] UNDER LIFT NO: []
 SERIAL NO: []
 TOW RATING: [] LBS. (MAXIMUM)
 UNDER LIFT CAPACITY: [] LBS. *

* NOTE: LIFT CAPACITY INDICATES THE STRUCTURAL CAPACITY OF THE LIFT MECHANISM, NOT THE MAXIMUM EFFECTIVE TRANSPORT LOAD.

TRUCK CHASSIS INFORMATION
 VIN [] C.A. [] IN.
 REAR AXLE WEIGHT RATING (GAWR): [] LBS.

THE MAXIMUM EFFECTIVE TRANSPORT LOAD OF THIS UNIT BASED ON TRUCK CHASSIS G.A.W.R. AND G.V.W.R SPECIFICATIONS

DO NOT EXCEED THE FOLLOWING WEIGHTS
 [] LBS. AT FULL EXTENSION
 [] LBS. AT 10" EXTENSION

LOSS OF VEHICLE CONTROL, WHICH COULD RESULT IN SERIOUS BODILY INJURY OR DEATH, CAN OCCUR IF THE EFFECTIVE TRANSPORT LOAD IS EXCEEDED.

MAXIMUM EFFECTIVE TRANSPORT LOAD IS AFFECTED BY THE CHASSIS ON WHICH THE TOWING EQUIPMENT IS INSTALLED. BEFORE ATTEMPTING TO USE THIS EQUIPMENT ON A CHASSIS OTHER THAN THAT SPECIFIED ABOVE, CONTACT JERR-DAN TO OBTAIN A REVISED RATING.

SAFETY IS NO ACCIDENT.
 REVIEW OPERATOR'S PRE-TRANSPORT CHECKLIST IN THE OWNER'S MANUAL EACH TIME YOU MOVE A VEHICLE. FOLLOW ALL INSTRUCTIONS ON CONTROLS AND UNIT.

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 JERR-DAN CORPORATION

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MANUFACTURED BY:
 JLG INDUSTRIES, INC.

FOR: **JERR-DAN**
An Oshkosh Corporation Company

SERIAL NO. []
 MODEL NO. []

1001127220-00

**MANUFACTURED BY
 JERR-DAN CORPORATION**

**MFG. UNDER ONE OR MORE
 OF THE FOLLOWING PATENTS:**

5,576,606 5,722,810
 6,290,450 6,315,515 B1
 6,527,495 B2

OTHER PATENTS PENDING

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SAFETY WARNING LABELS

These safety warning labels describe hazards and what happens if you encounter them. Read each safety warning label and figure out how to avoid the hazard. These labels must not be obliterated, removed or painted over. They are there to remind and protect the operator. (Not all decals are used on all units) If a decal becomes lost or unreadable, it should be replaced. Replacements are available through the Service Parts Department.

WARNING

OPERATORS' PRE-TRANSPORT CHECKLIST

REVIEW THIS CHECKLIST BEFORE EACH TOW.
FAILURE TO FOLLOW CHECKLIST COULD
CREATE A DANGEROUS CONDITION FOR YOU,
OTHER MOTORISTS AND PEDESTRIANS, AND
MAY RESULT IN SERIOUS INJURY OR DEATH.

VEHICLE ON WHEEL LIFT - CHECKLIST

- HEED ALL WARNINGS ON EQUIPMENT AND CONTROLS.
- DO YOU HAVE TURNING CLEARANCE FOR TOWED VEHICLE?
- ARE BOTH WHEEL LIFT TIE DOWN STRAPS INSTALLED AND TIGHTENED DOWN ON TOWED VEHICLE?
- ARE BOTH SAFETY CHAINS ATTACHED FROM TOWING TRUCK TO TOWED VEHICLE?
- IS THERE SUFFICIENT GROUND CLEARANCE FOR TOWED VEHICLE?
- IS THE WHEEL LIFT RETRACTED AS CLOSE AS POSSIBLE TO OBTAIN MAXIMUM WEIGHT DISTRIBUTION?
- IS THE WHEEL LIFT EXTENDED AT LEAST 4" TO INSURE UNOBSTRUCTED CROSSBAR PIVOTING?
- ARE AUXILIARY TOWING LIGHTS ATTACHED TO TOWED VEHICLE?
- DO NOT OVERLOAD. SEE LOAD RATING PLACARD ON UNIT. STOP VEHICLE AT ONCE AND REARRANGE LOAD IF YOU NOTICE FRONT END OF TRUCK FEELS LIGHT OR BOUNCES EXCESSIVELY OR IF STEERING FEELS EXCESSIVELY LIGHT. LOSS OF VEHICLE CONTROL CAN RESULT FROM AN OVERLOAD AND CAN CAUSE A SERIOUS ACCIDENT.

VEHICLE ON TOW SLINGS - CHECKLIST

- ARE CHAINS SECURED FIRMLY AROUND THE AXLE OR THE FRAME OF THE TOWED VEHICLE?
- ARE CHAINS SECURELY FASTENED IN THE HOOKS AND SAFETY WRAPPED ON EACH SIDE OF THE SLING BOTTOM BAR ASSEMBLY?
- ARE BOTH SAFETY CHAINS ATTACHED FROM TOWING TRUCK TO TOWED VEHICLE?
- IS THERE SUFFICIENT GROUND CLEARANCE FOR TOWED VEHICLE?
- IS TOW SLING ASSEMBLY IN A BELOW HORIZONTAL POSITION TO PREVENT RIDING UP?
- ARE AUXILIARY TOWING LIGHTS ATTACHED TO TOWED VEHICLE?
- DO NOT OVERLOAD YOUR VEHICLE?

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WARNING

A MINIMUM OF 5 WRAPS OF CABLE MUST
BE LEFT ON WINCH DRUM TO ACHIEVE
RATED LOAD.
DO NOT USE WINCH TO MOVE OR LIFT
PERSONS.

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WARNING

HAVE YOU REVIEWED THE
OPERATOR'S PRE-TRANSPORT
CHECK LIST ON THE UNIT?

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CAUTION

**TOW HITCH BRACKET
MUST BE REMOVED
BEFORE UNFOLDING
THE BOOM DOWN FOR
WHEEL GRID OPERATION**

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WARNING

**PINCH HAZARDS
AND MOVING PARTS**

KEEP CLEAR OF THIS AREA

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CAUTION

**CLOSE TILT CYLINDER LOCK- OUT VALVE
BEFORE LIFTING WITH THE TOW SLING
OR USING GRID RECOVERY SHEAVE**

716



REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Jerr-Dan Corporation.

If NHTSA receives similar complaints, it opens an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Jerr-Dan Corporation.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to <http://www.safercar.gov>; or write to:

Administrator
NHTSA
400 Seventh Street S.W.
Washington, DC 20590

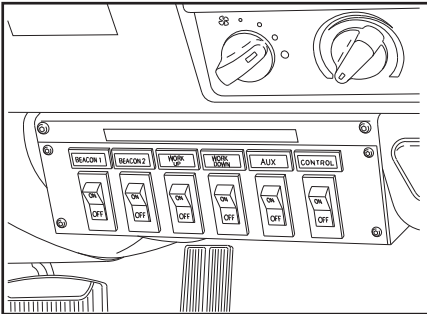
You can also obtain other information about motor vehicle safety from <http://www.safercar.gov>.

OPERATION

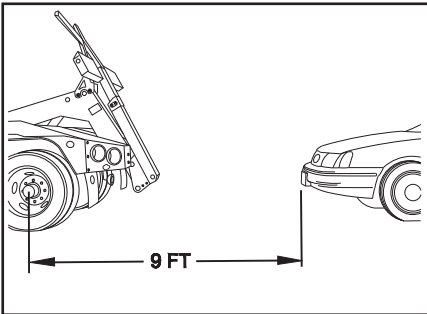
WHEEL-LIFT OPERATION

Your MPL-NGS is one of the most useful and efficient towing and recovery vehicles available. It is hydraulically powered and careful consideration should be given to the selection of commands. You can afford to work smart, the vehicle will do most of the work for you.

Follow these simple steps:

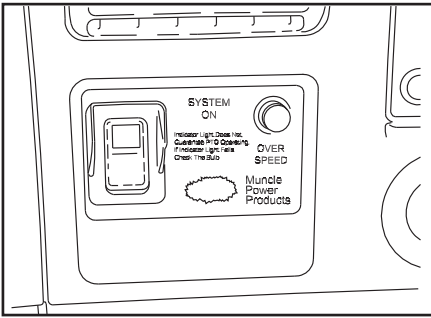


1. Turn on the safety and work lights. (Switches located on the dash panel).



2. Position the truck within 9 ft. of the subject vehicle and as close to the direction of the pull as possible.

3. Set the truck's parking brakes and put the transmission in park or neutral.

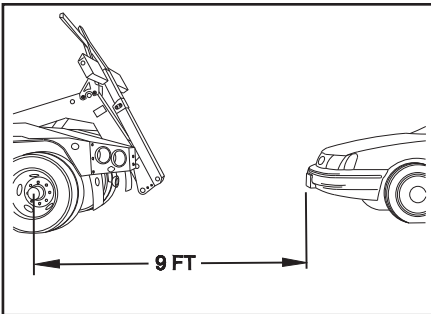


4. Engage the Power-Take-Off (PTO) or Clutch Pump and the hand controller using the "Control" switch in the switch panel. Most trucks will automatically throttle up when the parking brake is set and the transmission is park or neutral. **NEVER TRAVEL WITH THE POWER-TAKE-OFF OR CLUTCH PUMP CONTROL ENGAGED.** This could result in damage to the PTO or Clutch Pump unit and the truck transmission.

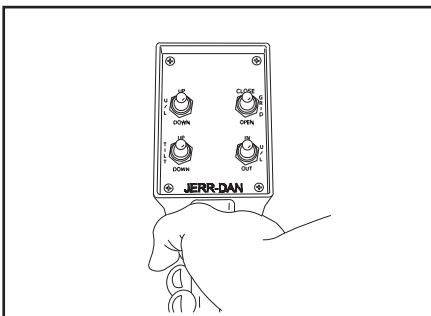


CAUTION:

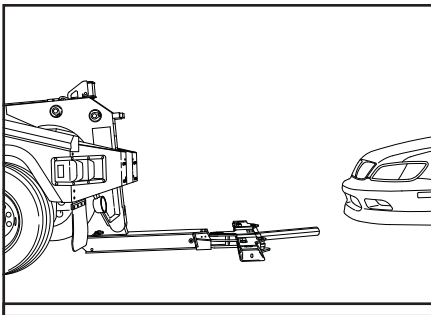
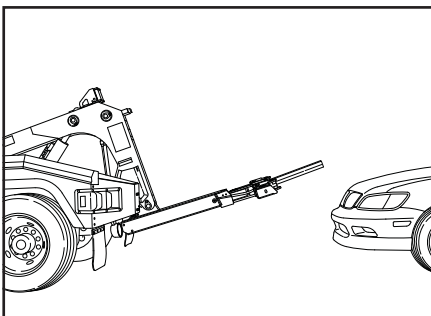
Never exceed 1,500 R.P.M. When your hook up is complete, reset the engine idle to normal.



5. Confirm the truck's position in relation to the vehicle to be towed. Nine (9) feet is recommended. Reposition the MPL-NGS if necessary. **Be sure the towed vehicle is not in gear or park. Keep the brake set.**



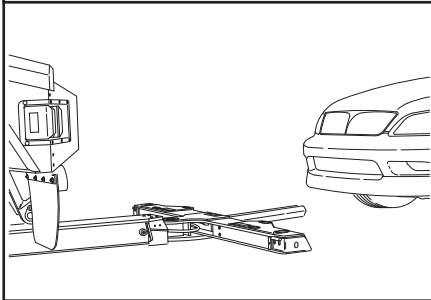
- Using the hand controller, unfold the underlift using the tilt down function. The underlift level stop assist system will stop the underlift travel at a preset position.

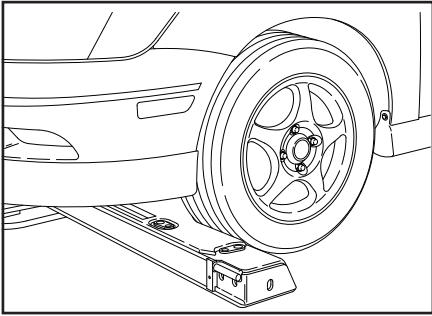


- Next, lower the underlift using the underlift down function on the hand controller. The underlift level stop assist system will stop the underlift travel at a preset position about 1-1/2" to 2" from the ground.

NOTE:

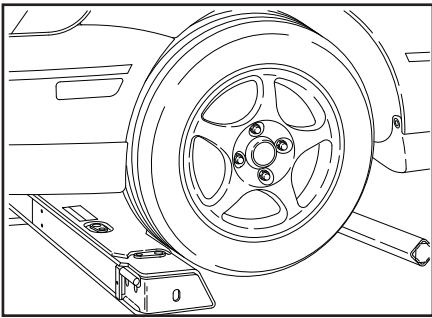
To override either stop position, simply release the control function and reactivate the same control function again to achieve further travel of the underlift.





8. Extend the underlift under the vehicle being sure that all under carriage parts are cleared and that the front portion of the grid is in contact with both tires. Lower the grid fully to the ground. **There is no reason for the operator to get under the vehicle.**

9. Visually inspect the tire to grid contact before proceeding.



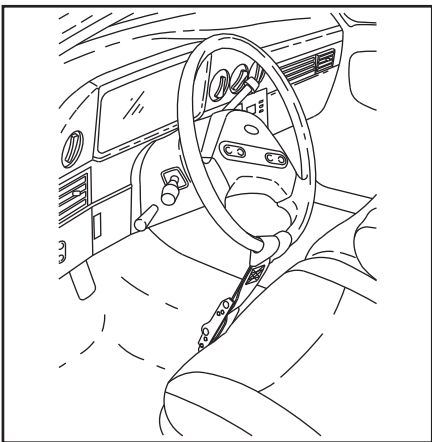
10. Close the grid arms around the tires to secure the towed vehicle. **Make sure that the arm is fully closed and in its over center locked position.**

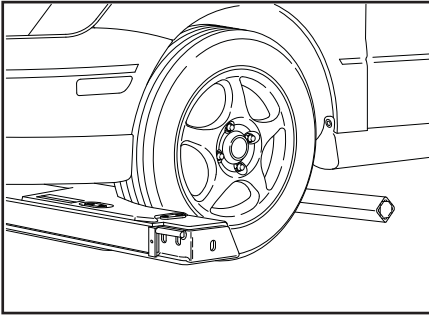
11. After securing the grid arms around the towed vehicles tires and before making the actual lift, check to be sure the towed vehicle's parking brake is released, the transmission is in neutral, and the wheels are straight.

NOTE:

If vehicle to be towed is on a slope, do not release the brake until the tie-down straps are installed. Observe the wheels in the grid for any slippage.

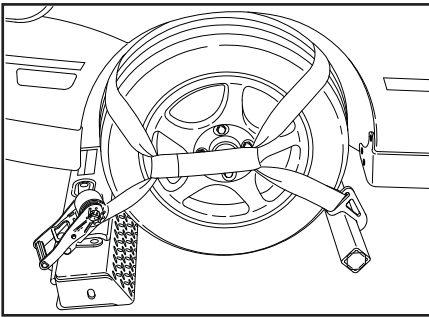
12. It is recommended that the steering wheel be secured by a steering wheel strap for any tow.





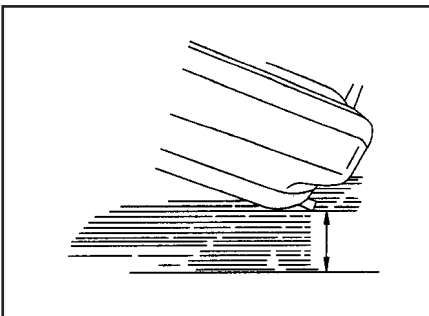
13. Lift the vehicle high enough to allow the tires to clear the ground. Make sure that the grid is not in contact with any engine or body components.

14. Remove the tie down straps from tool boxes and attach the tie down straps. (**See Tie-Down Strap instructions**).



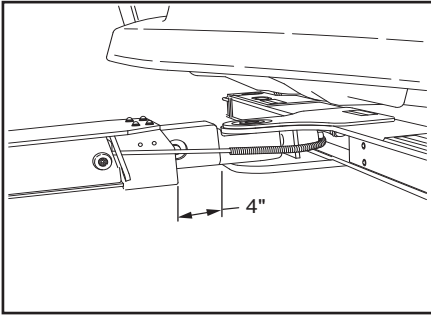
15. With the straps in place, the vehicle in neutral and the parking brake released, you can move the vehicle safely up, down, in or out. All of these movements are hydraulically controlled by the hand controller.

16. Raise the vehicle into the final towing position observing the far end for sufficient ground clearance. It is possible to set the rear of a front lifted vehicle completely onto the ground, causing damage. Take irregular roadsurfaces into consideration. Observe the lift function from the side and away from both vehicles if possible.

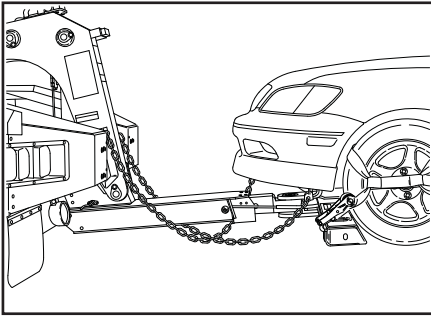


NOTE:

For the best towing and maneuverability the boom should be as close to horizontal as possible.



17. Power retract the grid boom until the towed vehicle is about 3 to 4 feet from the back of the truck. Leave enough room to maneuver around corners without corner binding or causing contact between the two (2) vehicles. **Be sure that the boom is extended at least 4" to ensure unobstructed crossbar pivoting.**



18. Be sure to maintain sufficient clearances with the bottom of the towed vehicle.
19. Attach the safety chains and towing lights. **Safety chains should be crossed from one side of the recovery vehicle to the opposite side of the towed vehicle.**

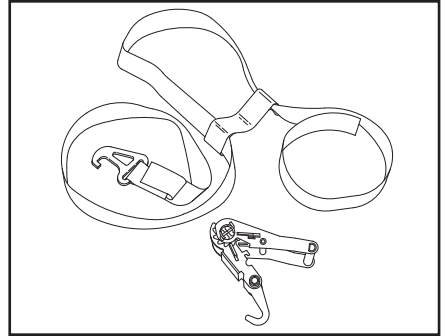
TIE DOWN STRAPS

The MPL-NGS is supplied with a set of high strength polyester web tie down straps. They are to be used to secure wheels of the towed vehicle to the wheel lift grid. **NEVER TOW A VEHICLE WITHOUT THE TIE DOWN STRAPS INSTALLED.**

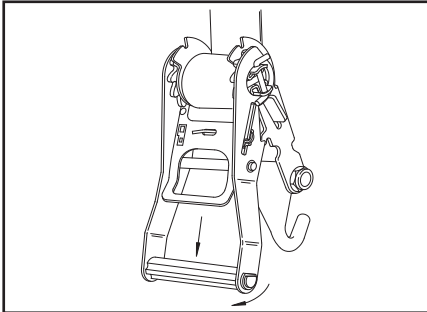
The tie down strap assembly is comprised of 2 basic components:

1. The Strap/Hook Assembly
2. The Ratchet Spool Mechanism

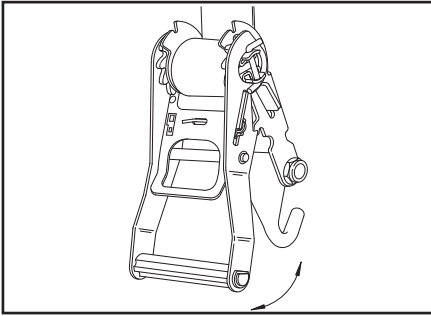
The following steps should be followed to properly install the tie down straps:



USING THE RATCHET SPOOL MECHANISM

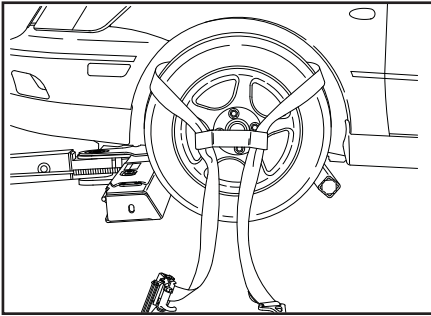


1. First the spool must be set into "free spool". This is done by pulling the lock bar out and swinging the handle upward until it rests in the free spool notch and then simply pulling out the amount of strap required to fit over the tire.
2. Now pull on the lock bar and move it downward until it engages the ratchet teeth on the take up spool. By pushing and pulling the handle up and down, the strap will be wound onto the spool.

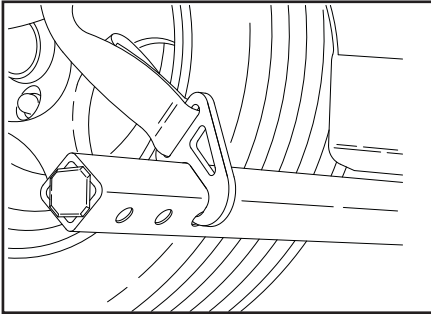


3. To release the ratchet, simply pull on the locking bar, disengaging the teeth and raise the handle to the "free spool" position.

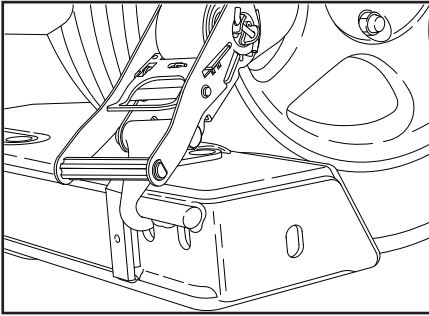
INSTALLING THE TIE DOWN STRAP



1. With the vehicle lifted just barely off the ground, insert the end of the strap through the sewn loop on the other end of the strap to form a loop. Put the loop over the tire as shown with the strap resting on the tire at the ten o'clock and two o'clock positions. The choker strap should be across the center of the tire.



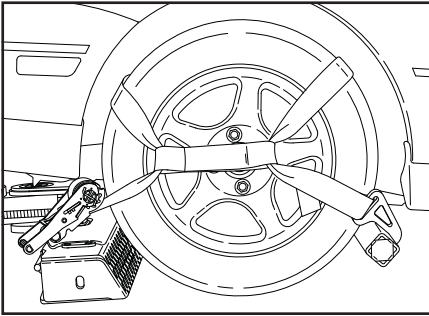
2. Place the rear hook of the strap assembly into a hole on the back side of the grid arm. Try to use the hole that is closest to the tire.



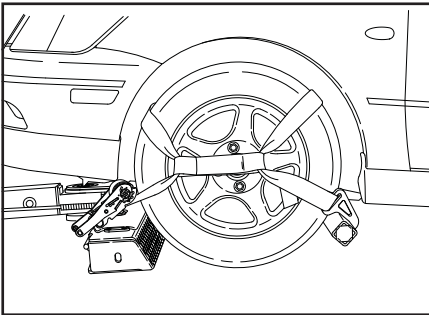
3. Place the hook of the ratchet into one of the holes on the front side of the grid. Again, try to use the hole that is closest to the tire.

NOTE:

The hole on the outside of the grid can be used to hook the ratchet in if you need to clear body mouldings or wide tires.



4. Take up the slack in the strap by ratcheting the take-up spool arm. Continue until the tires show some compression. **Notice that the strap in the ratchet is pulling down and forward on the loop over the tire.**



5. Raise the wheel grid to the towing position. **RE-TIGHTEN THE RATCHET PERIODICALLY AS THE TIRE SETTLES IN GRID FROM TOWING.**

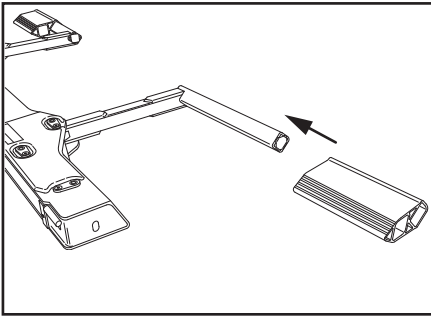
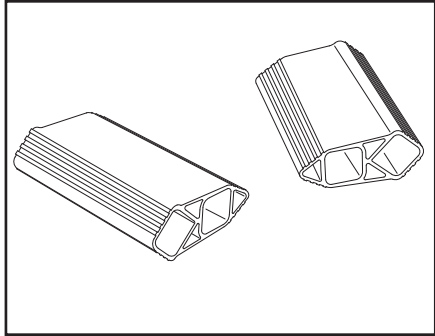
NOTE:

Never tow a vehicle without tire tie-down straps and safety chains installed.

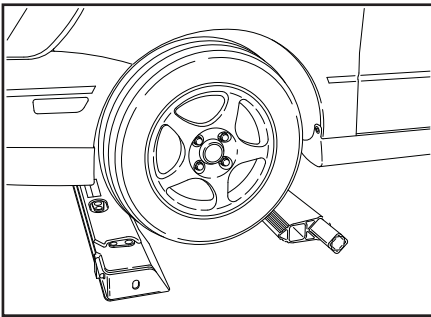
WHEEL GRID SPACERS

The MPL-NGS with the self loading grid is supplied with a set wheel grid spacers. They can be used to pick up a vehicle with small diameter tires or even a vehicle without wheels and tires.

The following steps should be followed to properly install the wheel grid spacers:



1. Slide the back side of the wheel spacer over the wheel grid arm.



2. Close the grid arms around the tires to secure the towed vehicle. **Make sure that the arm is fully closed and in its over center locked position.**
3. Visually inspect the tire to grid contact before proceeding.

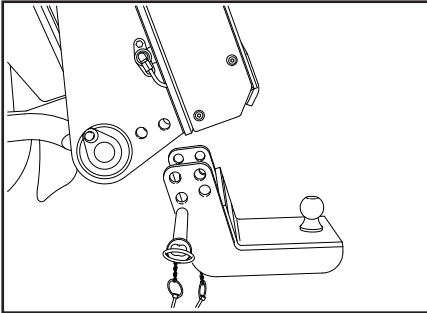
TOWBALL HITCH ATTACHMENT

The MPL-NGS is supplied with a Towball Hitch attachment that will allow you to recover and tow trailers requiring a tow ball hookup.

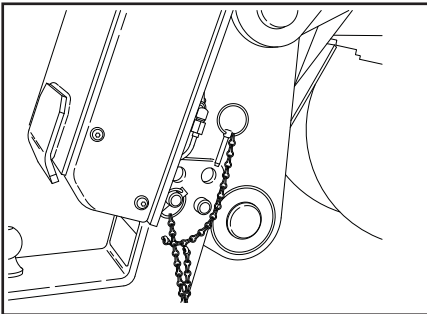
DO NO EXCEED THE FOLLOWING RATINGS:

1-7/8 in. Ball:.....	5,000 lbs. (GTW)*
2 in. Ball:.....	5,000 lbs. (GTW)*
2-5/16 in. Ball:.....	7,500 lbs. (GTW)*
50 MM Ball:.....	5,000 lbs. (GTW)*

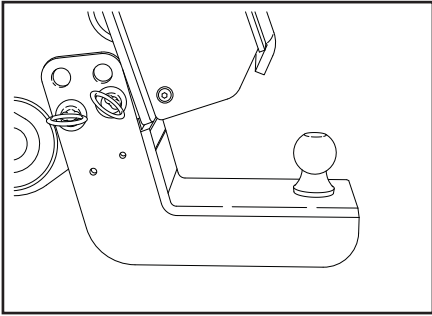
* Gross Tongue Weight



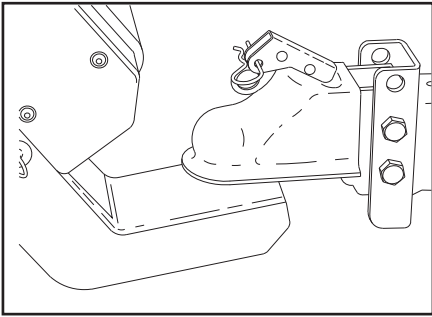
1. Remove the towball hitch attachment from the toolbox.
2. Use the bottom set of holes, install the towball hitch to the bottom on the underlift boom using the hitch pins.



3. Secure the hitch pins with the lynch pins.



4. Install the desired towball to the towball hitch.

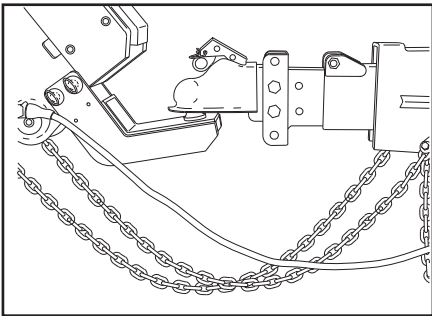


5. Position the ball coupler over the ball and lock into place.



CAUTION:

Make sure that the ball and coupler are of the same matched size.



6. Connect the trailer lights and attach safety chains.

RECOVERY WINCH OPERATION

The MPL-NGS recovery winch is an extremely effective tool in recovery or retrieval prior to lifting and towing. To operate the winch effectively, care and thought must be given.

Winch Rating: (Ramsey Worm Gear)8,000 lbs.

Wire Rope Working Limit:4,100 lbs.

Wire Rope Construction:6 x 25 EIPS RRL IWRC

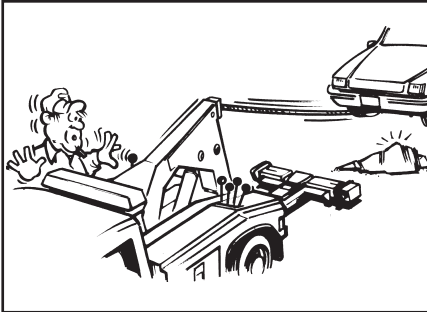
Wire Rope Size:3/8 inch x 75 Feet

*All ratings comply with SAE J2512 and SAE J706 Recommended Practice

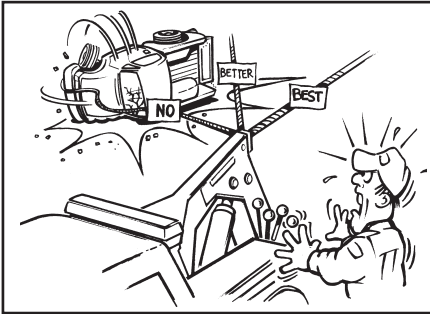


WARNING:

Do not exceed the working limit of the wire rope. Use snatch blocks and multiple lines to reduce the load on the wire rope.

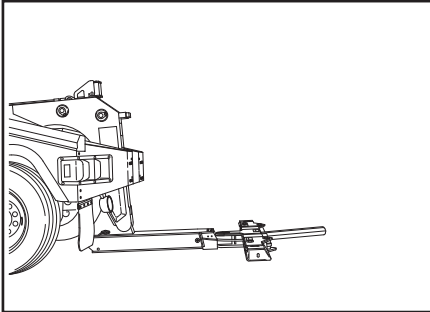


1. Check the direction you wish the work to travel, being sure there are no major obstacles in the way.

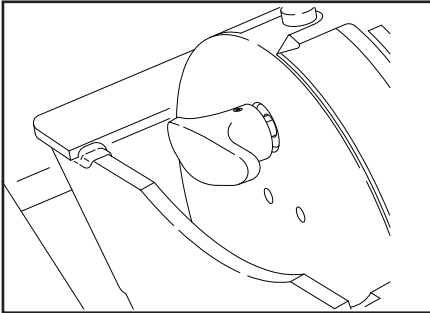


2. Position and align the truck to obtain as direct a pull as possible. Straight line pulls are the best and most efficient.

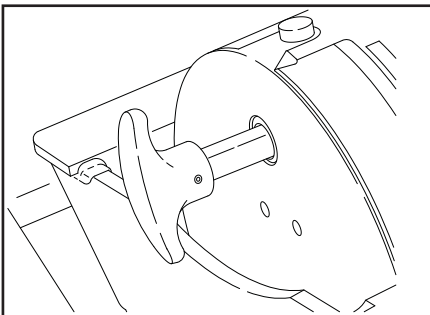
3. Set the brakes on your Jerr-Dan unit. The use of scotch blocks is also recommended.

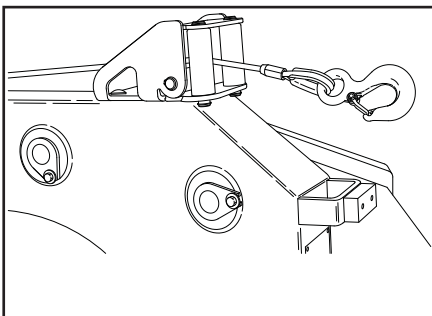


4. Unfold the under lift boom.

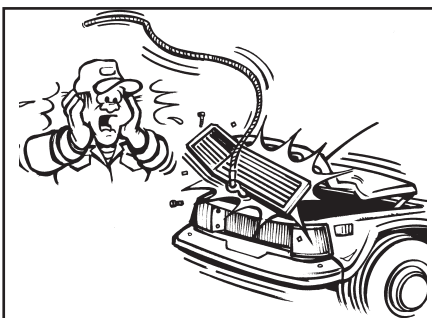


5. Disengage the winch "free-spool" by pulling out on the "T" handle and turning the handle 90°. The handle should remain in the "free-spool" position. **Never turn this handle while the wire rope is under load!** This allows the wire rope to be pulled directly off the drum to the work.

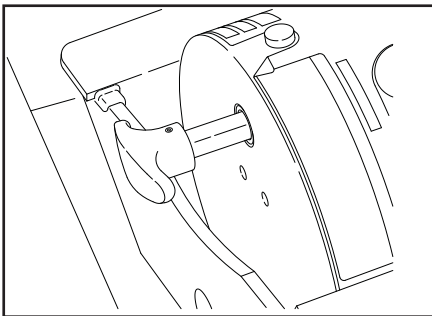




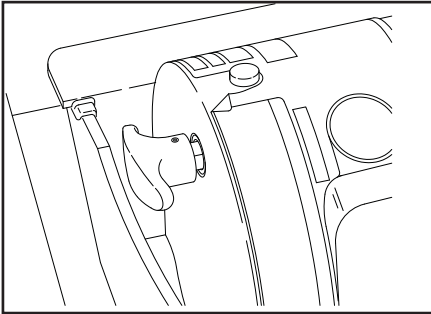
6. Pull the wire rope off of the winch spool and route it through the roller guide. Unwind enough wire rope to make the hook-up being sure that a minimum of at least five (5) wraps of wire rope remains on the drums.



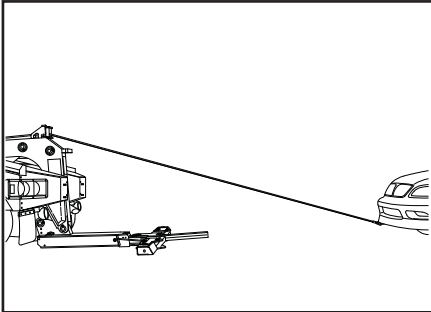
7. Attach the wire rope hook to a chain sling, or bridle and hook securely to the work. Be sure of this hook up; you don't want it breaking loose during the pull. (See the safety sections earlier in this manual). Do not connect to thin or loose body panels or components that could break loose during the winching operation. Slings and bridles are usually designed with hook clusters on them. Most chassis manufacturer's provide tie-down hooks and/or slots in chassis frames that may be able to be used as recovery attachment points. (Consult the Chassis Manufacturer's Towing Manual and/or the American Automobile Association (AAA) Towing Manuals.)



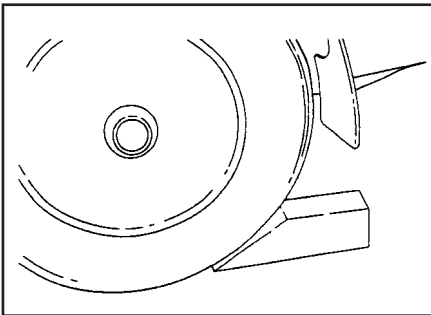
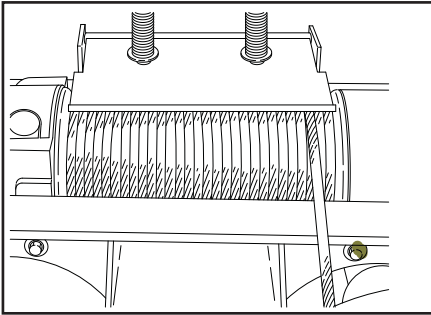
8. Reengage the winch "free-spool" by turning the handle back 90°.



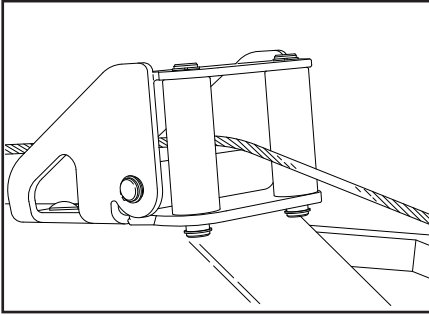
9. Jog the winch control until the handle retracts into the engaged position. Now slowly take up the slack in the wire rope.



10. With the wire rope tight, slowly wind it in, observing both the work and the drum. Be sure the wire rope strands do not cross wrap or criss-cross on the drum. Observe the path the work must travel for snags or obstructions which could stall the movement and overload the wire rope.



11. Once the work is in the desired position, apply the towed vehicles parking brake or use blocks or tie the work down if there is any question about stability. Slowly reduce the wire rope tension. After enough wire rope has been unwound, you may remove the hookup.



12. Now slowly retrieve the wire rope, carefully winding the wire rope onto the drum. Many operators take this opportunity to do a visual inspection. When you've finished rewinding the wire rope, be sure you don't overwind it. Always wear safety glasses and gloves when doing recovery work or handling the wire rope.

Remember, most wire rope failures are caused by cable crushing or the operator underestimating the pull or over estimating the wire rope strength.

GRID MOUNTED RECOVERY SHEAVE OPERATION (OPTIONAL)

If your MPL-NGS is equipped with a Grid Mounted Recovery Sheave follow these steps:

1. Position the truck as close as possible to the casualty vehicle and as close to the direction of the pull as possible.
2. Unfold the underlift and lower the boom to the ground.
3. CLOSE the underlift lockout valve located on the tilt/fold cylinder on the back side of the knee boom.



WARNING:

The underlift must be locked out to prevent the cable tension from lifting the underlift and grid.

4. Install the grid recovery sheave onto the back side of the grid crossbar and secure with the pins and hair pins.
5. Remove the wire rope retaining pin from the grid recovery sheave.
6. Unwind some wire rope and run the wire rope hook through the recovery sheave.
7. Install the wire rope retaining pin in the hole below the sheave to retain the wire rope. You are now ready for pulling.
8. After you have completed your pull, remove the cable from the grid sheave and remove the grid sheave from the grid and store in your toolbox.
9. OPEN the underlift lockout valve located on the tilt/fold cylinder on the back side of the knee boom.
10. Raise and fold your underlift into the travel position.

TOW SLING OPERATION (OPTIONAL)

Sling Rating: (50 M.P.H. Transport Speed)..... 4,000 lbs.

If your MPL-NGS is equipped with a towing sling, consult the AAA Towing Manual for hook up and follow these steps:



1. Position the truck within 9 ft. of the casualty vehicle and as close to the direction of the tow as possible.



2. Unfold the underlift and lower the boom to the ground.



3. Remove the tow sling hold back bar retaining pins allowing the hold back bars to swing out of its retaining brackets on the sides of the boom.
4. Lift the anchor assembly out of the cradle bracket and set it aside.



5. Fold the underlift up a few feet and open the underlift grid fully.



6. Take the underlift sheave assembly from the toolbox and install it onto the underlift crossbar using the pins provided.



7. Route the winch wire rope/cable over the sheave and install the guide pin in the outer most hole to retain the cable.



8. Fold the underlift up until the alignment indicators on the underlift and on the knee boom match up.



9. CLOSE the underlift lockout valve located on the tilt/fold cylinder on the back side of the knee boom.



WARNING:

The underlift must be locked out to prevent the cable tension from folding the underlift back into the knee boom.



10. Raise the knee boom to its fully elevated position.



11. Position the lower anchor assembly on the ground behind the truck and turn the “CAM” handles on the hold back bars 180° to the open position.



12. Connect the hold back bars to the tow sling lugs using the pins that you removed earlier.



13. Remove the right hand and left hand tow sling straps for the toolbox and lay them out next to the hold back bars on their respective sides.



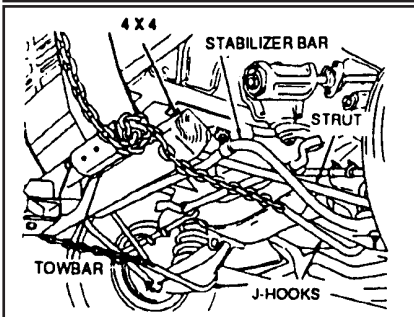
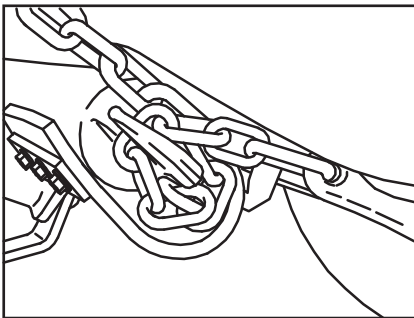
14. Install the lower heads of the strap assemblies onto the ends of the lower anchor crossbar. Be certain that the hook opening faces toward the truck and away from the casualty vehicle. Wrap the straps under the crossbar from front to rear. Secure the heads with the pins provided.



15. Remove the upper anchor assembly from the toolbox and install the hook on the winch wire rope/cable through the lug on the crossbar.



16. Install the upper heads of the strap assemblies onto the ends of the upper anchor assembly securing the heads with the pins provided.



17. Maneuver the sling under the vehicle to be towed, and far enough under so the vehicle will ride on the rubber belts.

18. Attach hook-up chains. The chain J hooks must be secured firmly around the axle or the frame of the towed vehicle. When fastening the J hook, be sure that it is attached to the towed vehicle in such a manner as to prevent any damage to the brake lines or other functional parts of the vehicle. With the chain securely fastened in the hook on each side of the bottom bar assembly, the chain should then be wrapped around the bottom bar. Secure the remaining chain to the hook at the top of the tow sling.

19. Using the tow sling with late model vehicles, it may be necessary to use spacer blocks or a cross beam in order to get sufficient height to prevent any damage to body parts. The AAA Towing Manual will diagram this.

20. Be sure the fuel tank is not in contact with the sling or towing mechanism. **The fuel tank must not support any weight whatsoever.**



21. Rotate the “CAM” handles on the hold back bars 180° to the closed position.



22. Raise the vehicle using the wrecker boom winches. (Read the safety and operating instructions for the boom and winches beforehand.) The vehicle should be raised until the wheels are a minimum of ten inches off the ground. Observe the opposite end of the vehicle for ground clearance. As the vehicle is raised, the hold back bars should be drawn in until they lock in the fully retracted position.



23. Install safety chains and towing lights.



CAUTION:

The Bottom Anchor Assembly (round tube) must never be higher than the attachment point on the rear of the truck. The Stand Off Bar Assembly acts as a pivot in the event of a sudden stop. This will assure that the towed vehicle will not catapult forward onto the deck of the MPL-NGS.



24. After the tow is complete, reverse the procedure to unload the vehicle.

25. Rotate the “CAM” handles on the hold back bars 180° to the open position and allow lower anchor assembly to extend to the ground.



26. Open the underlift lockout valve, then partially lower the boom and underlift for easy access.

NOTE:

If the valve is not opened the underlift tilt will not function.



27. Disassemble the tow sling by removing the strap assemblies and the upper anchor cross bar and stowing them in the toolbox.

28. Remove the winch cable from the underlift sheave and stow the hook on the roller guide. Remove the sheave assembly from the underlift and stow it in the toolbox.



29. Turn the “CAM” handles on the hold back bars 180° to the locked position.



30. Remove the pins from the hold back bars at the rear of the body then slide the hold back bars into their fully retracted and locked position. Move the lower anchor assembly aside.



31. Fold the underlift to the ground. Lift the lower anchor assembly into the cradle bracket on the knee boom.



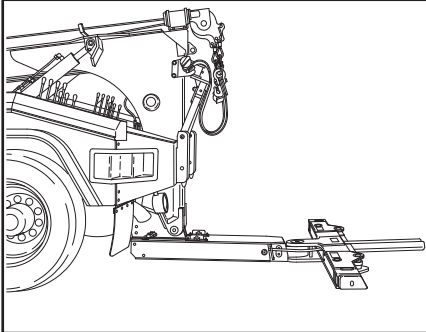
32. Connect the hold back bars to the tow sling storage bracket using the pins that you removed earlier.



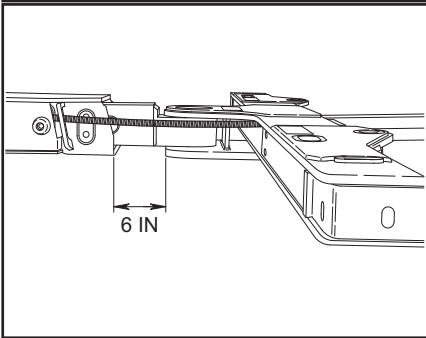
33. Snug up the wire rope and fold the underlift into its stored position.

MOTORCYCLE TOWING ADAPTER OPERATION (OPTIONAL)

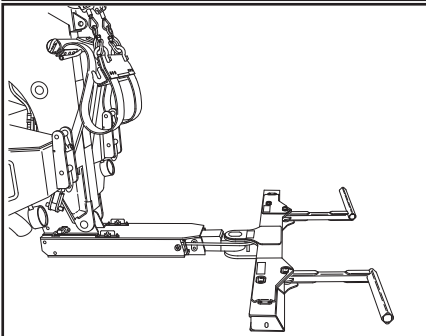
If your MPL-NGS is equipped with a motorcycle towing adapter follow these steps:



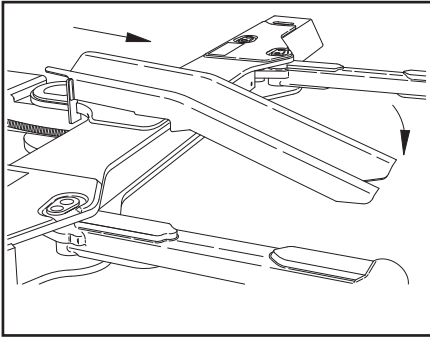
1. Lower the boom flat to the ground.



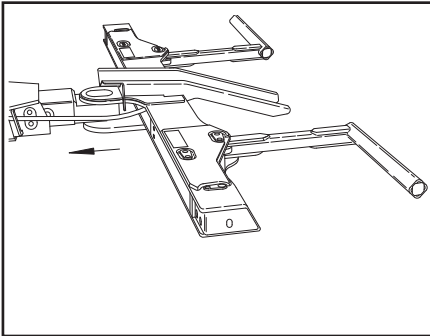
2. Extend the wheel lift at least 6”.



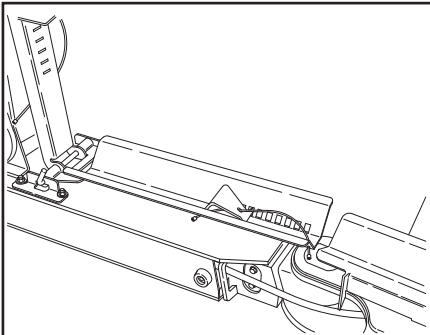
3. Close the grid arms like you would if you were loading a vehicle.



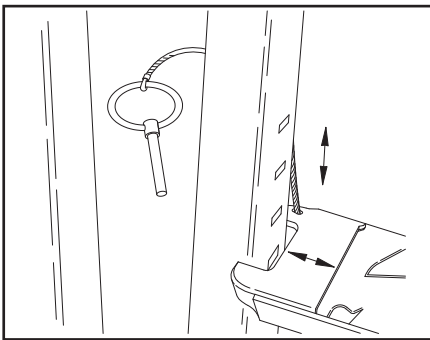
4. Hook the loading ramp onto the wheel grid and engage the rear hooks on the back side of the grid.



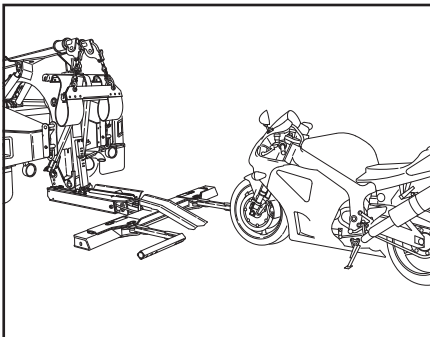
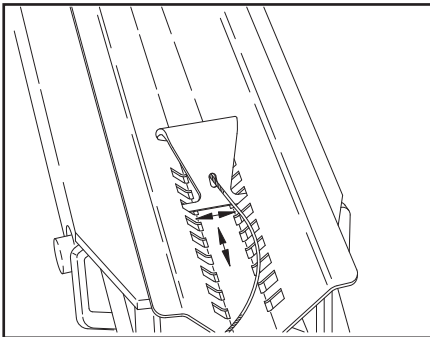
5. Completely retract the wheel grid for loading.



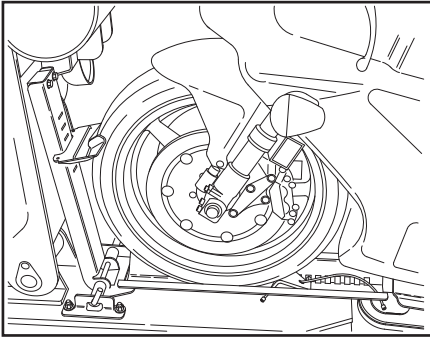
6. Attach the lower trough and vertical stop into the mounting bracket at the front of the boom with the pin and retaining pin.



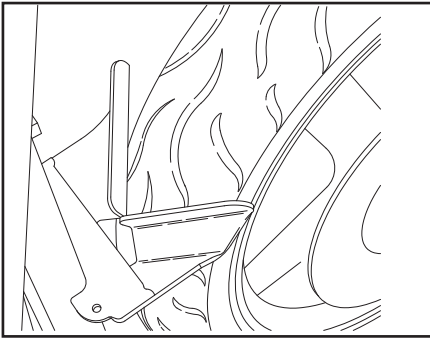
7. Adjust the upper and lower tire stops so that they will contact and restrain the front tire when loaded.



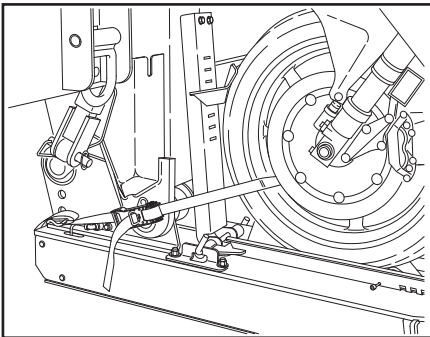
8. Align the motorcycle with wheel lift boom and ramp.



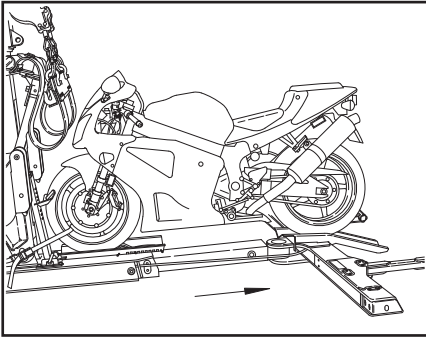
9. Push the motorcycle up the ramp until the front wheel is resting in and against the tire stops in the front brackets.



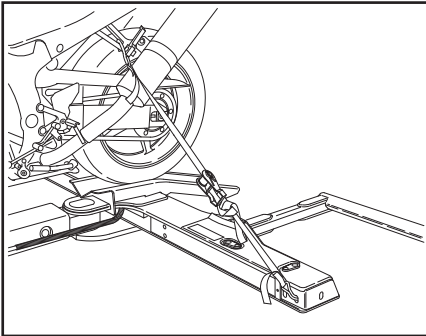
10. Check front tire for fit with the upper and lower tire stops. When the motorcycle is rocked side to side the front tire should feel solid in the tire stops and centered in the trough. If the front tire is not clamped in the stops, back the motorcycle off and readjust the stops as necessary.



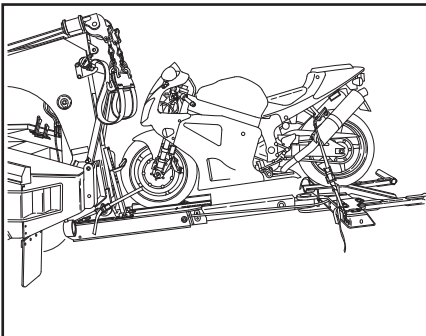
11. With the motorcycle stable in the towing adapter, strap the front tire to the wheel lift boom. Place the hooks of the "middle" wheel straps over the end of the boom top plate and run the other ends of the straps thru the front tire. Insert the loose end of the wheel strap into the ratchet on the end other strap and tighten.



12. After securing the front tire, extend the wheel lift under the rear tire of the motorcycle raising the rear tire of the motorcycle onto the ramp.



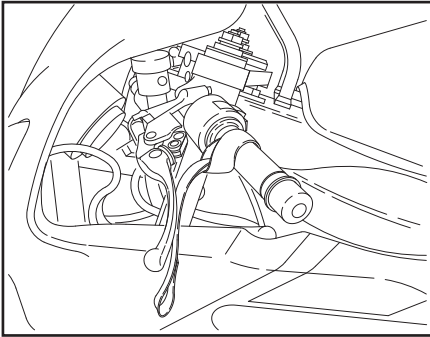
13. Tie down the rear of the motorcycle. Place the hook on one end of the "rear" strap into the hole on the front side of the grid. Place the other hook onto the motorcycle and tighten. Repeat for the other side.



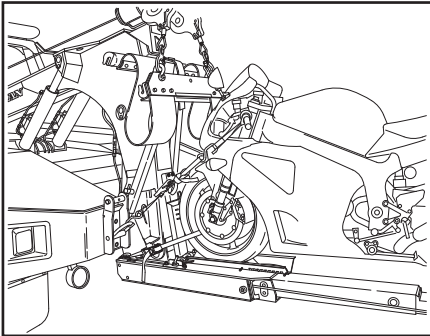
14. Raise the underlift boom to the desired towing height.

 **CAUTION:**

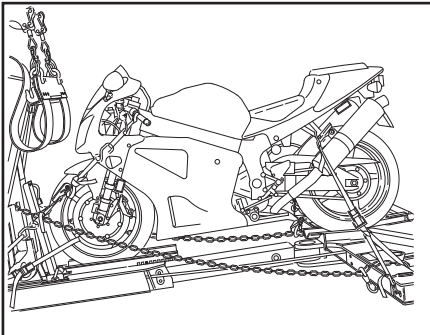
Care should be taken when lifting the boom. Do not try to level the underlift. The straps may overtighten or become loose.



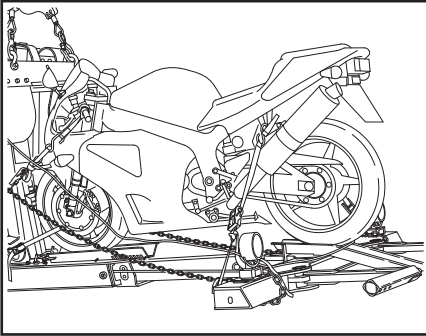
15. Tie the front of the motorcycle to the rear of the wrecker body. Attach the lasso style straps to each of the handle bars.



16. Place the hook on one end of the "front" strap to the loop of the lasso strap on the handle bars and place the hook on the other end to the rear of the wrecker body and tighten with the ratchet. Repeat for the other side.



17. Use the wheel lift safety chains to prevent the wheel grid from pivoting during travel. Loop the end of the safety chain around the grid and secure with the grab hook. Remove the slack in the chain and secure the chain in the keystone of the chain box.

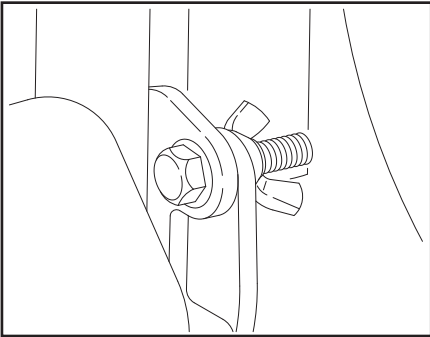


18. Attach towing lights.

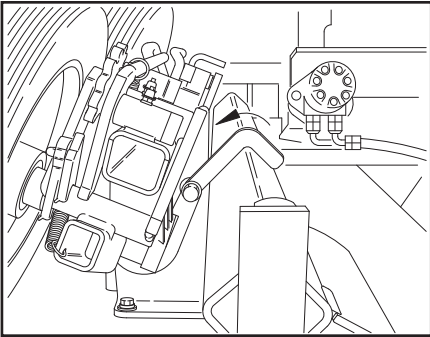
19. Reverse the loading procedures to unload the motorcycle.

DOLLY STORAGE OPERATION (OPTIONAL)

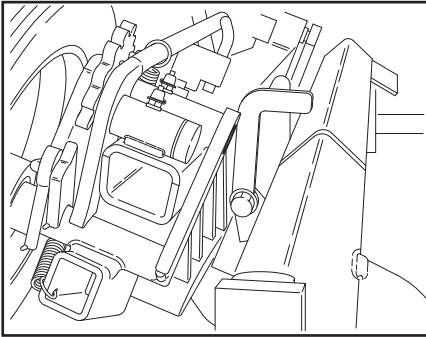
If your MPL-NGS is equipped with a towing dolly, follow these steps for dolly removal and storage:



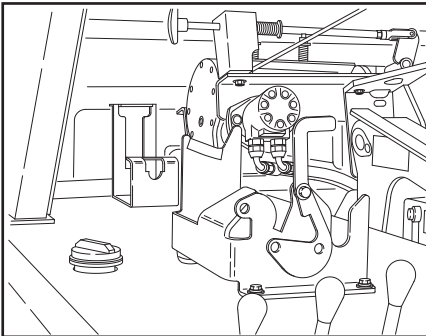
1. Remove the retaining bolts and wing nuts or pad locks, which ever your unit may have.



2. Open dolly the retaining latch by pulling the top toward you.

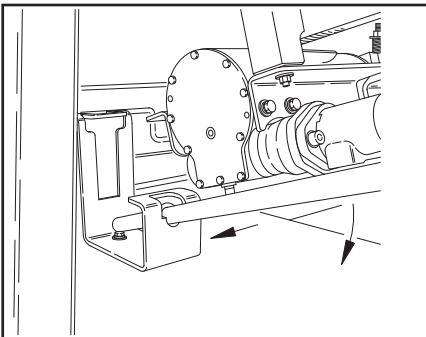


3. After you have the latch open, the dolly is free to be removed.

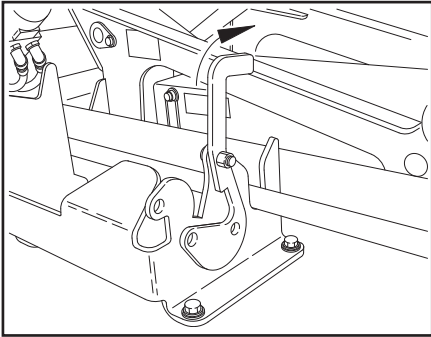


4. Remove the dolly wheel assemblies, the axle cross tube rails and the pry bar/jack bar.

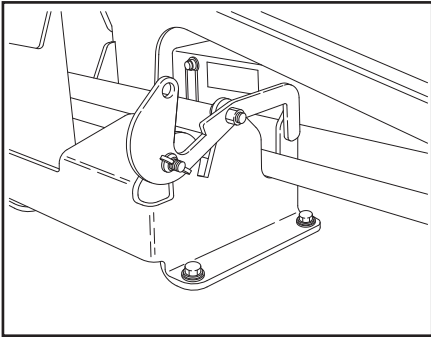
5. Load dollies. (See Dolly Operation instructions).



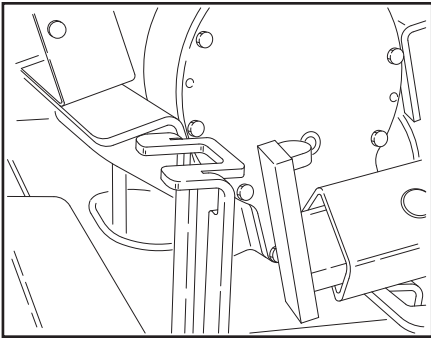
6. After loading the dollies, place the pry bar/jack bar back into the storage bracket by inserting the end of the bar with the ring around it thru the cutout in the front bracket. Allow the other end of the bar to rest on the rear bracket.



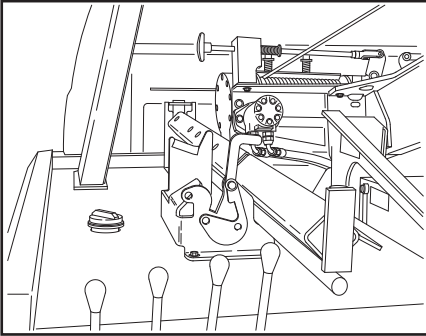
7. Close the dolly latch by pushing the top away from you.



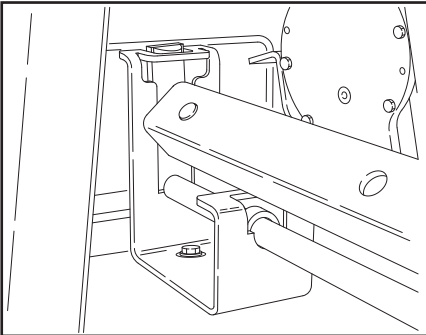
8. Install the retaining bolts and wing nuts or pad locks.



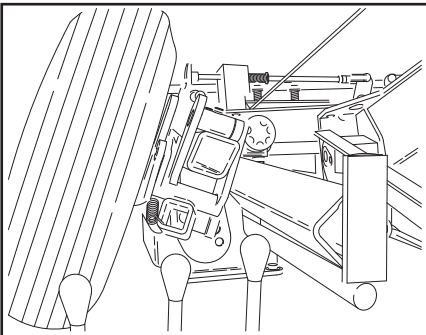
10. Place the axle cross tube rails back into the storage bracket by inserting the tab on the end of the axle tube into the cutout in the storage bracket.



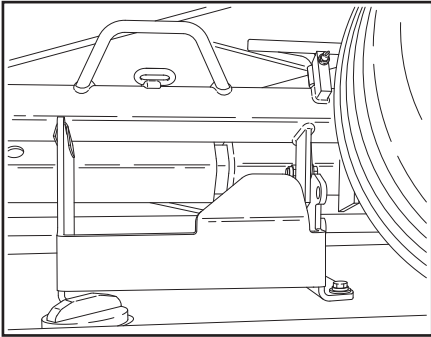
11. The axle cross tube rails need to be stored with the wheel ramp plates turned in and up.



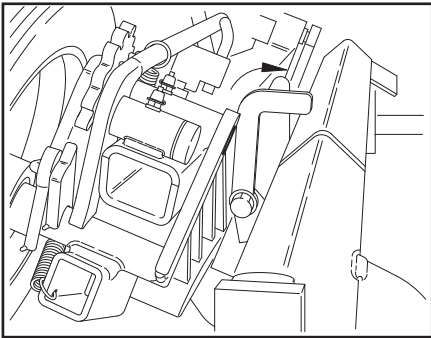
12. Allow the axle cross tube rails to hang from the bracket by the tab.



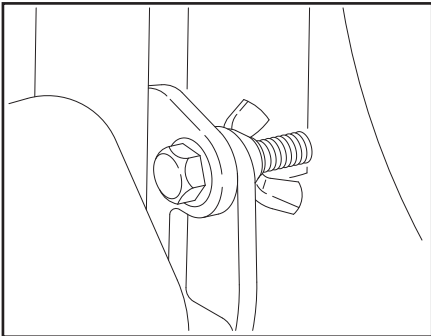
13. Place the dolly wheel assemblies back into the storage brackets.



14. The tab on the storage bracket should be placed through the dolly pocket of the dolly wheel assembly.



15. Close the dolly retaining latch by pushing the top away from you.



16. Install the retaining bolts and wing nuts or pad locks.

DOLLY OPERATION (OPTIONAL)

Specifications:

Dolly Capacity:.....2,360 lbs.
Tire/Wheel: 4.80 x 4.00/8Tire
Axle: 2 1/2 Sq. Tube
Max. Speed:.....50 M.P.H.

The Quick Loading Dolly is simple to use once the principles of the unit are understood.

1. Extend telescopic cross rails by first depressing spring-loaded plunger and sliding inner (male) tube until plunger locks into the hole that matches the width of vehicle to be towed.
2. Place cross rails on ground, fore and aft of vehicle's tires.
3. Place dolly in the fully collapsed position with the dolly tires closest to each other.
4. Set rail ends into dolly pockets, adjusting for the size of vehicle's tires, positioning rails as close as possible to tires.
5. Make sure safety locks are disengaged, allowing trip assemblies freedom of movement while lifting vehicle.
6. Engage ratchet assemblies to prevent injury and damage to the operator and vehicle in case pry bar slips from hand.
7. Insert pry bar into pry bar pocket.
8. Swing outer end of pry bar in an arc until trip assembly rises then locks spindle assembly in the down position. **Do not release pry bar until spindle assembly is locked down.**
9. Repeat this action for all four (4) assemblies. Dolly is now raised.
10. After dolly is in the raised position, engage safety locks over trip assemblies to prevent releasing while vehicle is in tow.

11. Safety tie-down straps should be used to secure dolly to vehicle in case of rough road. Dolly is now ready for towing.

BE SURE EACH WHEEL IS SECURELY HELD IN ITS DOLLY AND INSPECT THE GROUND CLEARANCE OF THE VEHICLE BEFORE ATTEMPTING A TOW.

To unload the vehicle, stand clear of both the vehicle and the dollies and slip the chain link off of the cam bar. Carefully slide the jack handle over the cam bar and slowly lift the handle allowing the vehicle to drop. Repeat this step on the other dolly and then remove the axles from the dollies.

USE CARE WHEN RELEASING OR UNLOCKING THE CAM BAR AS IT CAN MOVE SUDDENLY AND WITH FORCE, CAUSING INJURY. JERR-DAN ASSUMES NO LIABILITY FOR THE USE OR MISUSE OF THESE DOLLIES OR ANY DAMAGE CAUSED BY THEM.

MAINTENANCE

MAINTENANCE AND LUBRICATION

Your MPL-NGS has been designed to give you excellent service and long life, but like all equipment, it requires proper and periodic maintenance. The truck chassis itself is on a maintenance schedule recommended by the manufacturer. Follow these guidelines and protect your vehicle warranty. There are a number of different lubricants used on your MPL-NGS. The following Lubricant Chart shows the proper lubricant and the most common brands and specification which meet the requirements.

Use only safe practices when maintaining this equipment. Always shut off the engine before reaching into pinch areas.

Inspect your vehicle and wheel lift system periodically for damage or evidence of pending failure. Damaged or broken parts should be replaced immediately. Never operate the MPL-NGS or any of its components if they are defective or operating improperly. The cause of any binding or leakage should be determined immediately and the problem promptly fixed.

Your MPL-NGS has Jerr-Dans “No-Lube” maintenance-free pivot joint system. Most of the pivot joints utilize high-strength composite bearings with hardened and plated pins to reduce maintenance, down-time and the cost of lubrication over the life of the product. There are however a few areas that still require some lubrication or maintenance. Sliding surfaces should be cleaned periodically with a clean cloth. The Lubrication Chart and diagram shows the location of these points, lubrication schedules, and what type of lubricant to use.

Check the hydraulic oil level bimonthly or after any leakage. A sight glass has been provided on the hydraulic tank. The proper oil level is best checked with all cylinders fully retracted. Use a Super Premium Grade Multi-Viscosity hydraulic oil. (See Chart) (Automatic transmission fluid may be used in the hydraulic system if necessary.)

The hydraulic filter located on the return side of the hydraulic tank comes equipped with a restriction indicator gauge. The gauge shows the condition of the filter element. When the needle reaches the red band (25 psi), the filter is starting to bypass and the element needs to be changed. Failure to change the filter element will result in premature wear and/or failure of any or all of the hydraulic components. **Check gauges when the hydraulic**




fluid is at operating temperatures. Cold oil is more dense and will give a false indicator gauge reading.

Cold temperatures can cause hydraulic oils to thicken and adversely affect the hydraulic functions of your carrier. If this is the case, it will be necessary to change the hydraulic oil to maintain maximum system efficiency. A hydraulic oil such as Mobil DTE 11M or Conoco AW Hydraulic Fluid MV 32 can be used to replace the factory installed oil or it can be added to the hydraulic oil in your factory system.

If a cylinder seal leaks, disassemble the cylinder and find the cause of the leak. Small scores caused by chips or contaminated fluid can usually be worked out with fine emery cloth to avoid repetition of the trouble. Whenever any seal replacement is necessary, it is always advisable to replace all seals in that component. These seals are available in kits. Also, thoroughly clean all components before reassembly.

The MPL-NGS is mounted to the truck chassis by bolts. These bolts are torqued at the factory to 70 ft. lbs. The MPL-NGS body is mounted to the subframe by bolts. These bolts are torqued at the factory to 70 ft. lbs. We recommend that these bolts be inspected within the first 30 days and inspected and retorqued every 90 days thereafter. Replace any broken or damaged bolts immediately. **Refer to chart on the following page.**

FASTENER TORQUE SPECIFICATIONS

TIGHTENING TORQUES (FOOT-POUNDS) FOR SCREWS AND NUTS			
SIZE INCHES (MM)	 GRADE 2	 GRADE 5	 GRADE 8
1/4 (6.350)	6	8	10
5/16 (7.938)	10	14	19
3/8 (9.525)	17	27	33
7/16 (11.112)	28	45	60
1/2 (12.700)	45	68	90
9/16 (14.288)	63	100	120
5/8 (15.875)	90	135	180
3/4 (19.050)	145	230	310
7/8 (22.225)	145	380	500
1 (25.400)	220	570	760

- All torque values shown are for bolts (cap screws) and nuts that are either zinc-plated or lubricated.
- Torques shown above apply only to screws and nuts used for assembly and installation of all wrecker components, not to the chassis.
- Different torque values may be given in instructions for certain components due to short thread engagement or low-strength internal threads.
- When nuts are used, tighten nuts to torques shown (screws or bolts should be held but not turned). **Always use a calibrated torque wrench.**
- Retighten nuts of all mounting screws that secure the wrecker and wrecker-body within 30 days after putting the vehicle into service. Thereafter, inspect and retorque such screws and nuts every 90 days and after each job that imposes extremely heavy loads on the equipment.
- Convert ft/lbs to Nm (Newton metres) by using the following formula:

$$\begin{array}{l} \text{Multiply:} \\ \text{ft/lbs} \end{array} \times \begin{array}{l} \text{by:} \\ 1.3558 \end{array} = \begin{array}{l} \text{to get:} \\ \text{Nm (Newton metres)} \end{array}$$

OILS AND GREASES

The following oils and greases are suitable for use with your Jerr-Dan Wrecker.

Company

Product

HYDRAULIC OILS

- | | |
|------------|--|
| 1. Chevron | AW Hydraulic Oil MV |
| 2. Exxon | Univis N32 |
| 3. Mobil | DTE13 |
| 4. Texaco | Rando HDZ-32 |
| 5. Shell | Tellus Oil T 32 |
| 6. Citgo | A/W All Temp |
| 7. Amoco | Rycon Oil 32 |
| 8. Conoco | AW Hydraulic Fluid MV 46 |
| 9. Mobil | DTE11M
(for cold weather use) |
| 10. Conoco | AW Hydraulic Fluid MV 32
(for cold weather use) |

GREASES

- | | |
|------------|----------------|
| 1. Drydene | HD Lithium EP2 |
| 2. Gulf | Crown EP2 |
| 3. Amoco | Amolith EP2 |
| 4. Shell | Alvania EP2 |
| 5. Texaco | Marfax EP2 |
| 6. Mobil | Mobilux EP2 |
| 7. Sunoco | Prestige EP2 |

WINCH AND GEAR LUBE

- | | |
|-------------|--|
| 1. Phillips | 140 wt. EP Gear Lube 93301
(or approved equivalent) |
| 2. Mobil | Mobil SCH624
(or approved equivalent for
cold weather use) |

WIRE ROPE HANDLING AND INSPECTION

WARNING

Wire Rope WILL FAIL if worn-out, overloaded, damaged, improperly maintained or abused.

Wire rope failure may cause serious injury or death!

Protect yourself and other:

- ALWAYS INSPECT wire rope for WEAR, DAMAGE or ABUSE BEFORE USE.
- NEVER USE wire rope that is WORN-OUT, DAMAGED or ABUSED.
- NEVER OVERLOAD a wire rope.
- INFORM YOURSELF: Read and understand manufacturer's literature or "Wire Rope and Sling Safety Bulletin"

REFER TO APPLICABLE CODES, STANDARDS and REGULATIONS for INSPECTION REQUIREMENTS and REMOVAL CRITERIA.

A new wire rope requires a break-in period. Run the wire rope through several cycles at low speeds gradually increasing the load on the wire rope. Make sure that the wraps of the wire rope are tight and evenly wound on the winch drum. A loose wire rope on the winch drum will cause crushing of the wire rope when heavy loads are applied.

All wire rope in continuous service should be observed during normal operation and visually inspected on a weekly basis. A complete and thorough inspection of all ropes in use must be made at least once a month and all rope which has been idle for a period of a month or more should be given a thorough inspection before it is put back into service. All inspections should be the responsibility of and performed by an appointed competent person with the training and experience to look for deterioration of the wire rope.

It is good practice , where the equipment is consistently in use, to give the rope a certain length of service, several hundred hours, several weeks or months and then renew the rope regardless of it's condition. This method eliminates the risk of fatigue causing rope failure.

Any deterioration, resulting in a suspected loss of original rope strength, should be carefully examined and a determination made as to whether further use of the wire rope would constitute a safety hazard.

There are certain points along any given rope which should be given more attention than others, since some areas will be subjected to greater stresses, forces, and hazards. Some of these areas include at the winch drum, at the boom sheaves and at the end attachments.

All products are subject to age, wear and deterioration, all of which cause a reduction in the products breaking strength capacity.

Probably the most common sign of rope deterioration and approaching failure is broken wires. Inspection criteria are specific as to the number of broken wires allowable under various circumstances. It is important that a diligent search be made for broken wires, particularly in critical areas. Inspection of wire rope ends should include hooks and thimbles.

Replace any wire ropes that have been abraded, crushed, kinked or twisted.

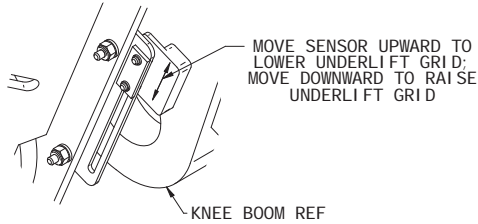
Wire rope should be routinely cleaned monthly of any and all debris. Grit and gravel can quickly reduce a wire ropes life. A wire rope should be well lubricated so that it can act and perform as it was designed. Lubrication keeps a wire rope flexible and free from rust.

Consult the manufacturer or your local distributor for the proper replacement wire rope.

To change or adjust the factory set positions of the Underlift Level Stop Assist system, follow these steps:

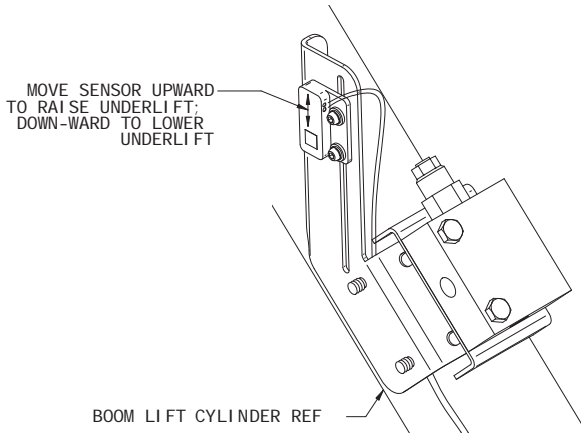
MPL-NGS

1. To change the tilt stop, move the sensor on the underlift boom base up, to lower the boom, and down to raise the boom as shown below.



NOTE:
A GAP OF .125-.1875 MUST BE MAINTAINED BETWEEN THE SENSOR AND THE BASE BOOM SIDE PLATE. INTERMITTENT OPERATION WILL OCCUR IF THE GAP IS NOT MAINTAINED.

2. To change the boom stop, move the sensor on the boom lift cylinder up, to raise the boom, and down to lower the boom as shown below.



NOTE:
A GAP OF .125-.1875 MUST BE MAINTAINED BETWEEN THE SENSOR AND THE DOUBLER PLATE. INTERMITTENT OPERATION WILL OCCUR IF THE GAP IS NOT MAINTAINED.

LUBRICATION POINTS

The following lubrication chart is located inside the tool box lid on the driver's side of the MPL-NGS body.

NOTICE

"MAINTENANCE FREE DESIGN"
THE SUBFRAME AND WHEEL-LIFT SYSTEM IS EQUIPPED WITH GREASELESS PIVOT JOINTS.
NO LUBRICATION IS REQUIRED

INTERVAL (HOURS)	REF NO.	IDENTIFICATION	SERVICE	LUBRICANT	NO. OF POINTS
50 OR MONTHLY	A	BOOM FLY	COAT OIL	MFG ENGINE OIL	2
	B	WIRE ROPE			1
100 OR BI-MONTHLY	C	HYD RESERVOIR	CHECK CHECK LUBE LUBE	* ** MFG MFG	1
	E	WINCH GEAR BOX			1
	F	PIVOT PIN ROLLER PINS			3
250 OR SEMI-ANNUALLY	H	HYD FILTER	CHANGE	---	1
1000 OR YEARLY	C	HYD RESERVOIR	DRAIN/FILL CLEAN DRAIN/FILL	* **	1
	D	MAGNETIC PLUG			1
	E	WINCH GEAR BOX			1

LUBRICATION CHART
JERR-DAN
WHEEL LIFT SYSTEM

SELF LOADING GRID

MFG INDICATES MULTI-PURPOSE GREASE
 * INDICATES SUPER PREMIUM GRADE MULTI-VISCOSITY HYDRAULIC OIL (AUTOMATIC TRANSMISSION FLUID MAY BE SUBSTITUTED IF NECESSARY)
 ** CONSULT WINCH MANUAL FOR PROPER GRADE AND TYPE

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TROUBLE SHOOTING

You probably won't require anything but preventive maintenance to keep your MPL-NGS running, however, the following chart will help you isolate and correct minor problems if they occur with use. Any service work on the hydraulic system should be performed by qualified mechanics. For a more comprehensive trouble shooting guide refer to Jerr-Dan's "Hydraulic Troubleshooting Guide", part number 5-377-000013, which is available through the Service Parts Department.

HYDRAULIC SYSTEM

Problem	Cause	Solution
Slow operation	<ul style="list-style-type: none"> a. Low engine RPM b. Low oil level c. Blocked or restricted hoses d. Dirty hydraulic oil e. Hydraulic pump worn f. Clutch Pump belt slipping 	<ul style="list-style-type: none"> a. Speed up engine b. Check dipstick and fill with the specified oil c. Inspect: remove blockage d. Drain, flush and refill with clean oil, replace filter e. Rebuild or replace f. Tighten or Replace belt
Valve Solenoid(s) sticking or frozen	<ul style="list-style-type: none"> a. Broken centering spring or clogged with foreign material b. Low Amperage/Voltage at Solenoid 	<ul style="list-style-type: none"> a. Inspect, clean or replace b. Check Amperage/Voltage
Valve leaks	<ul style="list-style-type: none"> a. Defective seals 	<ul style="list-style-type: none"> a. Replace
Cylinder leaks	<ul style="list-style-type: none"> a. Defective seals or rods b. Dirty or Defective CounterBalance Valve 	<ul style="list-style-type: none"> a. Inspect and replace b. Clean or Replace CounterBalance Valve
Erratic cylinder function	<ul style="list-style-type: none"> a. Air in the system b. Defective pump (pulsating) 	<ul style="list-style-type: none"> a. Cycle hydraulic system 10 to 15 times to remove air b. Replace if necessary
Remote hand controller fails to respond	<ul style="list-style-type: none"> a. Electric power turned off b. Not plugged in c. Faulty Remote Hand Controller 	<ul style="list-style-type: none"> a. Turn on CONTROL power switch in cab b. Check plug connection c. Use Manual Controls at Rear of Body

HYDRAULIC CLUTCH PUMP

Problem	Cause	Solution
No oil flow from pump	a. No oil in reservoir b. Pump not "primed" c. Clutch not engaging	a. Fill hydraulic reservoir b. Fill inlet hose from pump end c. Check wiring/fuse
Pump will not build or hold pressure	a. Relief valve improperly set b. Relief valve stuck open	a. Adjust relief valve to manufacturer's specification b. Remove, clean and reset
Pump is noisy - whines	a. Air in the system b. Cavitation	a. See "Oil Foaming" b. Check Hoses, Reservoir breather or strainer
Pump is noisy - squeals	a. Belts are worn/loose b. System horsepower demand exceeds belt capacity c. Clutch is slipping	a. Inspect, adjust and/or replace b. Review application c. Check voltage/ground
Pump "throws" belts	a. Engine and pump pulley alignment b. System horsepower demand exceeds belt capacity c. High-speed engagement	a. Check installation b. Review application c. Reduce start-up RPM
Pump leaks at shaft seal	a. Damaged seal b. Damaged pump body	a. Replace seal b. Replace pump body
Pump leaks at body section	a. Damaged seal b. Damaged pump body c. Body section bolt torque	a. Replace seal b. Replace pump body c. Torque to specification
Pump leaks at fittings	a. Loose fitting b. Damaged fitting c. Damaged pump body	a. Inspect and/or tighten b. Replace fitting c. Replace pump body
Pump is overheating	a. Low oil level b. Dirty oil c. Relief valve stuck open d. Relief valve improperly set e. Improper weight oil	a. Fill hydraulic reservoir b. Replace oil and filter c. Remove, clean and reset d. Adjust relief valve to manufacturer's specification e. Replace with correct oil
Oil foaming	a. Low oil level b. Improper oil	a. Fill hydraulic reservoir b. Fill with correct oil

P.T.O. FUNCTIONING IMPROPERLY

Problem	Cause	Solution
Cable tight or frozen	a. Cable kinked or bent b. Cable and P.T.O. connection not adjusted properly c. Mounting bracket nuts are over tightened at P.T.O.	a. Straighten or replace b. Inspect and adjust c. Loosen if necessary
Rattling noise in P.T.O.	a. P.T.O. backlash too loose (Consult P.T.O. Manual)	a. Shims must be removed
Howling Noise in P.T.O.	a. P.T.O. backlash too tight (Consult P.T.O. Manual)	a. Shims must be added
Gear oil leak between P.T.O. and pump	a. Defective shaft seal	a. Remove and replace
P.T.O. will not engage or disengage	a. Cable and P.T.O. connection not adjusted properly b. Defective shifter cover plate	a. Inspect and adjust b. Inspect and replace

HYDRAULIC PUMP

Problem	Cause	Solution
Pump noisy (Cavitation)	a. Low oil supply b. Heavy oil c. Dirty oil filter d. Restriction in suction line e. Pump worn	a. Fill to proper level b. Fill with proper oil (See chart) c. Replace filter d. Clean out and remove e. Repair or replace
Pump/Clutch Pump slow or fails to respond	a. Low oil supply b. Worn or Loose Belt(s)	a. Fill to proper level b. Tighten or Replace Belt(s)
Oil heating up	a. Foreign material lodged in relief valve b. Using too light oil c. Dirty oil d. Oil level too low e. Pump worn (slippage)	a. Inspect and remove/replace filter b. Drain and refill with clean oil c. Drain, flush and refill with clean oil/replace filter d. Fill to proper level e. Repair or replace

HYDRAULIC PUMP - con't

Problem	Cause	Solution
Oil foaming	a. Air leaking into suction line b. Wrong kind of oil c. Oil level too low	a. Tighten all connections b. Drain and refill with non-foaming type of hydraulic oil (See lube chart) Replace filter c. Refill to proper level
Hydraulic oil leak between P.T.O. and pump	a. Defective shaft seal	a. Replace shaft seal
Clutch Pump leaks at Pulley Shaft	a. Defective Shaft Seals b. Hydraulic Supply/Return lines connected incorrectly	a. Replace seals or Pump b. Check hydraulic line connections
Pump leaks at front and rear covers	a. Defective seals	a. Replace seals

WINCH FUNCTIONING IMPROPERLY

Problem	Cause	Solution
Winch screeches during operation	a. Insufficient lubrication	a. Lubricate per lube chart
Winch will not pull load or take in cable	a. Free spooling device not engaged b. Sheared keys or broken coupling c. Hydraulic pump worn d. Insufficient pump pressure e. Overload	a. Engage b. Inspect or replace c. Inspect and replace d. Check hydraulic pump and hydraulic fluid level e. Install snatch block in the rigging line

GLOSSARY OF TERMS

A

- Anchoring Device** - Used to attach cable ends, snatch blocks, safety chains, and tie-down assemblies to the towing vehicle.
- Approach Angle** - Angle between the plane of the platform and the ground.
- Attachment** - Any device that can be added to a basic unit or assembly.
- Auxiliary Braking Device** - A device which attaches to the disabled vehicle to assist the tow truck's brakes in retarding or stopping both vehicles.
- Auxiliary Equipment** - Equipment that is not necessary to perform the basic function of the primary equipment.
- Auxiliary Towing Lights** - Stop, tail, and turn signal lights attached to the trailing end of the towed vehicle and operated as part of the towing vehicle lighting system.

B

- Bending Moment** - The force times the distance from a reference point to the point the force is applied causing bending.
- Bird Nesting** - The tangling and intertwining of wraps and layers on a drum.
- Body** - The structure mounted on a chassis cab or that portion of the vehicle that carries the load.
- Body Hinge** - The attachment mechanism connecting the body to the hinge pin at the pivot axis about which the body rotates into the tilt position.
- Body Subframe** - Another term for body understructure or mounting frame.
- Body Weight** - Unmounted weight of a body with applicable options.
- Boom** - The structure member that supports the load.
- Boom Angle** - The boom angle is measured between a horizontal line and a line through the boom pivot and center of sheave.
- Boom Head** - The structural member at one end of the boom which can swivel and support the load lifted through the sheave and sheave support device.
- Boom Length** - The straight line distance from center of the revolving base to the center of the boom head.

Brakes - Parking - A system used to hold a stopped machine in a stationary position.

Brakes - Service - A primary brake system used for retarding and stopping the truck.

Bumper - DOT - A bumper designed to provide rear-end protection that meets the requirements of FMCSR 393.86.

Bus Bar Grid - A device used for towing vehicles by lifting one end of the towed vehicle by the wheels.

C

CA (Cab to Axle) - The distance from the back of the truck cab to the center of the rear axle.

CG (Center of Gravity) - The point at which the weight of the chassis, body/equipment and payload, if collectively or individually supported, would balance vertically, horizontally, and laterally.

CT (Cab to Tandem) - The distance from the back of the truck cab to a point midway between the tandem axles.

Cable - Steel wire rope used for pulling.

Car Carrier - Vehicles equipped to transport other vehicles mounted on a flat platform and/or with an additional assembly attached to the rear to facilitate towing a second vehicle. These units are also known as slidebacks, rollbacks, transporting equipment carriers and flatbeds. See Carrier.

Carrier - A platform body with a winch for loading.

Casualty Vehicle - The damaged or disabled vehicle.

Capacity - The load that a machine can lift at any given point.

CAUTION - A signal word used when a potentially hazardous situation exists that might result in minor injury or property damage.

Certification Label - Required by Public Law 89-563, which states that a motor vehicle or item of motor vehicle equipment complies with all applicable Federal Motor Vehicle Safety Standards (FMVSS) in effect on the date of manufacture.

Chain Assemblies - Chain with all hardware and coupling devices.

Chassis Cab - A vehicle consisting of a chassis upon which is mounted a cab; capable of being driven by the addition of wheel or other items of running gear, but lacking a body or load-carrying structure.

Completed Vehicle - A vehicle that requires no further manufacturing operations to perform its intended function, other than minor finishing operations such as painting.

Component - Any part of an assembly on a machine when referred to individually.

Control - A device used to control the functions of a unit.

Control Lever - A device for imparting motion into a control linkage.

Crossbar - A transverse horizontally pivoting member attached to the boom of a wheel-lift or underlift for attaching towing accessories.

Curb Side - The right or passenger side of the vehicle when viewed from the rear, opposite side from *ROADSIDE*.

Curb Weight - The weight of a vehicle in operational status, with all standard and commonly installed equipment and the fuel tank(s) filled to capacity.

Cylinder - A device which converts fluid power into a linear mechanical force and motion usually consisting of a movable piston and piston rod within a cylinder bore.

D

DANGER - A signal word used when an imminently hazardous situation exists that can result in death or serious injury.

Disabled Vehicle - Any vehicle that cannot operate under its own power.

Dolly - A four-wheeled carriage used in towing to support the trailing end of the towed vehicle.

DOT (Department of Transportation) - A federal agency dealing with regulations concerning both the manufacture and operation of motor vehicles and motor vehicle equipment. See NHTSA.

Driveline - The driveshaft and associated joints.

Drum - Any spool on which are wrapped ropes used in machine operation.

E

Extend Cylinder - Cylinders used to extend or retract boom structures.

F

Filter- A device whose primary function is the retention by a porous media of insoluble contaminants from a fluid.

Final Stage Manufacturer - A person, firm, or corporation who performs such manufacturing operations on an incomplete vehicle that it becomes a completed (end-user) vehicle.

FMVSS (Federal Motor Vehicle Safety Standards) - Regulations promulgated by NHTSA under Public Law 89-563, which are mandatory and must be complied with when motor vehicles or items of motor vehicle equipment are manufactured and certified thereto.

Frame - Structure on which either the upper or lower equipment is located.

Frame Cutoff - Centerline of rear axle(s) to the rearmost point of the chassis frame as modified for body installation.

Frame Lift - See Underlift.

Frame Section Modulus - The engineering term that indicates the relative strength of frames as it relates to shape. It takes into account frame depth, flange width, and material thickness. All other things being equal, the frame with the largest section modulus will have the greatest strength and stiffness, i.e., the ability to more effectively resist deflection under load.

Free Spool - The operation of unspooling wire rope from a drum by pulling on the end of the wire rope while the winch is stationary. The drum is disconnected (declutched) from its powertrain during this operation.

Forks - A device attached to the lift bar for lifting a vehicle by the tires, axle, frame, or structural member. May be classified as chain, axle, or frame forks.

FW (Frame Width) - The overall width of the chassis frame measured outside to outside behind the cab.

G

GAWR (Gross Axle Weight Rating) - The value specified by the manufacturer as the load-carrying capacity of a single-axle system as measured at the tire-roadway interface.

GCWR (Gross Combination Weight Rating) - Represents the entire weight of a vehicle on the ground with a trailer or trailers including vehicle, equipment, driver, fuel, and payload (everything that moves with the vehicle.) Gross combination weights published represent maximum allowed.

Grab Hook - For use with chains and some tow-sling hookups.

Grid - A device that attaches to the lift bar for engaging the tires of a towed vehicle.

GVWR (Gross Vehicle Weight Rating) - The maximum total vehicle rated capacity, measured at the tire ground interface, as rated by the chassis manufacturer.

GVW (Gross Vehicle Weight) - Value specified by the manufacturer as the maximum loaded weight of a single vehicle including all equipment, fuel, body, payload, driver, etc.

H

Headboard - Structure on which an emergency light bar is mounted.

Hook-up Chains - Length of chain used to connect a recovery vehicle to a casualty vehicle.

Horizontal Center of Gravity (HCG) - The point at which half of the gross weight is forward and half is aft.

Hydraulic Control Valve - A mechanical device to divert or control the flow of fluid in a hydraulic system.

Hydraulic Hose - Flexible oil lines used to transmit fluid.

Hydraulic Oil - Fluid used in operation of hydraulic systems.

Hydraulic Relief Valve - A mechanical device used to limit the pressure in a hydraulic circuit.

I

Incomplete Vehicle - As assemblage consisting, as a minimum, of a frame and chassis structure, powertrain, steering system, suspension system and braking system to the extent that those systems are to be part of the complete vehicle that requires further manufacturing operations.

Independent - The Wrecker Boom and Underlift Boom are separate (independent) from each other.

Integrated - The Wrecker Boom and Underlift Boom are combined together as a complete unit.

J

J-Hook - Attachment device used for towing/recovery.

L

L-Arm - See Wheel Arm

Layer - All wraps of the same diameter on a drum.

Lift Bar - A traverse horizontally pivoting member attached to the boom of a wheel-lift or underlift for attaching towing accessories.

Lift Cylinder - Cylinders used to raise or lower boom structures.

Lift Forks - See Forks.

Lifting Capacity - The load that a machine can lift at any given point.

Lift Tow Rating - Maximum Steering Towing Load.

Light Bar (Emergency) - An array of lamps used in accordance with local ordinances.

Light Pylon - Structure on which an emergency light bar is mounted.

Line Pull - The maximum wire rope pull, in pounds, at the drum, at full-load engine speed, with specified lagging diameter.

Line Speed - Speed in feet per minute of a single rope, based on full load engine speed with specified lagging diameter.

M

Marker Lights - Small amber and red lights attached to bodies to indicate overall clearance at night.

Maximum Loaded Vehicle Weight - The sum of curb weight, passengers and cargo.

Motor - A rotary motion device which changes hydraulic energy into mechanical energy.

Motor Vehicle Safety Standards - See FMVSS.

Mud Flap - Splash-Deflecting shields at rear of wheel.

N

NHTSA (National Highway Traffic Safety Administration) - The federal agency responsible for promulgating and insuring compliance of regulations dealing with the manufacture and certification of motor vehicles or items of motor vehicle equipment. See DOT.

O

Outriggers - A beam type device attached to frame of a truck or rubber tired carrier, to provide maximum stability by reducing load on tires and increasing width of operating base.

Overall Vehicle Height - Distance from the ground to the highest point on the vehicle with equipment in stowed position.

Overall Vehicle Width - The design dimension of the widest part of the vehicle, exclusive of signal lamps, outside rearview mirrors, flexible fender extensions, and mud flaps, determined with doors and windows closed and the wheel in the straight ahead position.

Overhang - The horizontal distance for the centerline of a single rear axle or center point of a tandem rear axle to a point where the vertical component is imposed.

P

Payload - The weight of the commodity being hauled. Payload capacity is computed by subtracting the completed weight of the vehicle (including driver and passengers) from the GVWR.

Pintle Hook - Hook mounted on a truck or semitrailer used to couple a full trailer.

PTO (Power Takeoff) - Mechanical device used to transmit engine power to auxiliary equipment. Power takeoffs can be mounted on either a main or auxiliary transmission. Front mounted and flywheel mounted power takeoffs are also used in various applications.

Push Bumper - Device used to push a vehicle, sometimes equipped with a rubber face.

R

Rating - The specified design operating limit of a device.

Rear Jack - One or more devices designed, when used, to stabilize chassis.

Recovery - Act of moving a vehicle to a position from which it can be driven or towed.

Recovery Vehicle - Vehicle to retrieve and if necessary lift and tow other vehicles.

Resisting Bending Moment (RBM) - A calculation used to compare frames of different section modulus and of different material. It is the product of the section modulus times the yield strength of the frame material.

Roadside - The left or driver's side of the vehicle when viewed from the rear, opposite side from *Curbside*.

Rolling Resistance - The restraining forces contributed to the load when rolling on wheels.

Rollback - See Car Carrier

Rope - See Wire Rope

Rub Rail - Member running longitudinally providing rub service on side of body.

S

SAE - Society of Automotive Engineers.

Safety Chain(s) - Used to connect the towing and towed vehicle as a secondary coupling system to prevent separation of a vehicle trailer, converter dolly, or towed vehicle, should the primary coupling become detached.

Safety Wrap - Wrapping the tow chain(s) around the grab hooks of the tow bar inboard of chain.

Scotch Blocks - A device used to prevent chassis movement.

Serial Number - An identification number stamped on a metal plate by the passenger car, van, or truck manufacturer (see VIN), or the towing equipment manufacturer, and placed on chassis, body, or components for identification purposes.

Sheave - A wheel grooved for a wire rope to transfer power.

Shipping Weight - The dry weight of a complete truck with all standard equipment including grease and oil but without and fuel or coolant.

Side Rail - Horizontal extensions of the body sides, either sheet or tubular metal.

Slew - A rotating super structure about a vertical axis.

Snatch Block - A single or multiple pulley used to reduce line tension or change cable direction.

Spacer Blocks - Used in conjunction with wood beams to provide additional clearance between the tow bar, chains, and the body of the casualty vehicle.

Spade - One or more ground penetrating devices designed primarily, when used, to stabilize rearward chassis movement.

Stabilizers - A hydraulic or manually operated leg device (i.e., outboard legs, outriggers, or jack legs) attached to trucks to give additional support down to the ground for improved stability.

Steering Wheel Securing Device - Used to secure front wheels in lieu of standard steering column lock.

Stroke - The length of travel of a cylinder rod or piston.

Suction Line - A tubular connection line to convey fluid between a reservoir or tank and the inlet of a hydraulic pump.

Supply Tank - An oil reservoir used in the hydraulic system.

Swivel Head - See Boom Head.

T

T-Hook - Attachment device used for towing.

Tail Plate - Rearmost part of the towing vehicle body.

Tail Swing - Clearance distance from center of rotation to the extreme rear extension of the revolving superstructure.

Tie-Down Assemblies - Device(s) used to restrain cargo or vehicles (i.e., strap, bridle, chain, or cable.)

Tie-Down Chains - Chains used to restrain cargo or vehicles.

Tilt Cylinder - Cylinders used to change the attitude of a structure or body.

Tire Clearance - Necessary space between tires and the nearest component to allow operation of truck without damage to tires.

Tire Lift - A device used for towing vehicles by lifting one end of the towed vehicle by the wheels.

Tow - Act of transporting a vehicle from one point to another by a second vehicle.

Towed Vehicle - The vehicle being towed.

Towing - See Tow.

Tow Bar - A device for positioning a towed vehicle behind a towing vehicle.

Tow Chain - Length of chain used to connect the sling with the towed vehicle.

Tow Sling - A device used for lifting and towing vehicles with a partial load supported on rubber straps.

Tow Vehicle - Vehicle used to lift-tow other vehicles.

Towing Light/Bar - See Auxiliary Towing Lights.

Trailer 5th Wheel Plate - A plate attached to a tow truck-lifting device that captivates the kingpin on trailers allowing a trailer to be towed in the same manner as intended by the trailer manufacturer.

U

Underlift - A device used for towing vehicles by lifting one end of the towed vehicle from under the axle or structural member.

Unloaded Vehicle Weight - The weight of a vehicle with maximum capacity of all fluids necessary for operation of the vehicle, but without cargo or occupants. Also referred to as curb weight.

V

Valve - A device which controls fluid flow direction, pressure, or flow rate.

VIN (Vehicle Identification Number) - The number assigned to a vehicle by the manufacturer primarily for registration purposes. It may consist of numerals, letters, or a combination thereof.

W

WARNING - A signal word used when a potentially hazardous situation exists and could result in death or serious injury.

Weight Distribution - The portion of total weight of the vehicle on each axle.

Wheel Arm - A device that attaches to the lift bar for engaging the tires of a towed vehicle.

Wheelbase - Horizontal dimension from centerline of front axle to the effective centerline of the rear axle(s).

Wheel Chock - A device used to prevent chassis movement.

Wheel Fork - See Wheel Arm.

Wheel-Lift - A device used for towing vehicles by lifting one end of the towed vehicle by the wheels.

Wheel Securing Device - A strap or mechanical device, when attached to the lift-bar, which limits the potential for separation of the towed vehicle from the underlift, during operating conditions.

Wheel Straps - Used to tie down wheels of the towed vehicle when using wheel-lift, car carrier, or dolly towing equipment to limit the potential for separation of the towed vehicle from the towing apparatus.

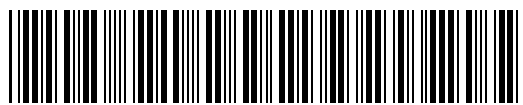
Winch - A device for winding and unwinding cable.

Wire Rope - See Cable

Working Load Limit - Minimum breaking strength divided by the factor of safety.

Wrap - A single coil of wire rope wound on a drum.

Wrecker - See Tow Vehicle, or Recovery Vehicle.



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